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DOMESTIC ENGINEERING

TD1*
J66
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PUBLISHED AT
1900 PRAIRIE AVENUE
CHICAGO

Better Business

One manufacturer reports 114% increase in October and 104% in November. Others find 40% improvement in 1934.

FHA program will help our industry in 1935 as dealers and wholesalers back big national campaign.

Better Distribution

Plumbing and heating contractor-dealers lead entire building trade in advertising support of Federal Housing Administration.

Established methods of distribution are making tremendous gains as entire industry unites for 1935 drive.

If the present gains are to be held and if full advantage of further business improvement is to be taken, the established methods of distribution must be maintained.

JANUARY
1 9 3 5

Plumbing & Heating Contracting and Merchandising

Replace those frozen corroded pipes with

BRIDGEPORT
COPPER WATER TUBE

REPLACING OLD PIPE WITH COPPER WATER TUBE

Water companies and plumbing contractors who have made a study of service pipes have proved that copper tube has advantages over others. Leading water companies are standardizing on copper.

•

Because of low installation expense and long life, Bridgeport Copper Tube actually costs no more than rustable pipe. Comes in long flexible coils, 30, 45 and 60 feet. Easily handled, requires fewer fittings.

The modern service line that makes a better job

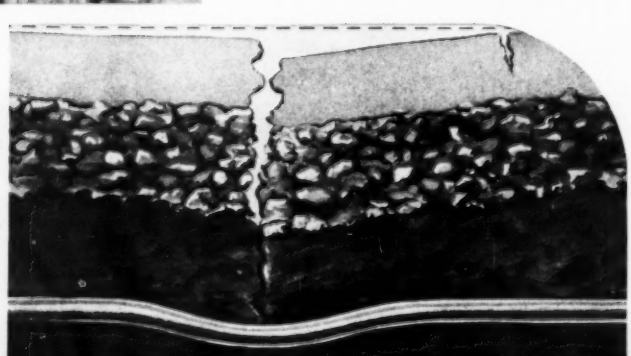
Choked with rust, eaten away by soil corrosion, service pipes offer poor resistance to freezing water. Even though underground, zero weather often shows them up.

Rustable pipes, indoors or out, should be replaced with Bridgeport Copper Water Tube. Consisting of 99.9% pure copper, it *cannot rust*. Easily withstands the highest water pressures. Can stand a number of freezings without bursting or cracking.

Bridgeport copper service tube is economical to install. Readily flanged to fit all standard types of flanged or compression fittings. Threading unnecessary. Made by a company which has been making brass and copper pipe and tubing of the finest quality for over 50 years.

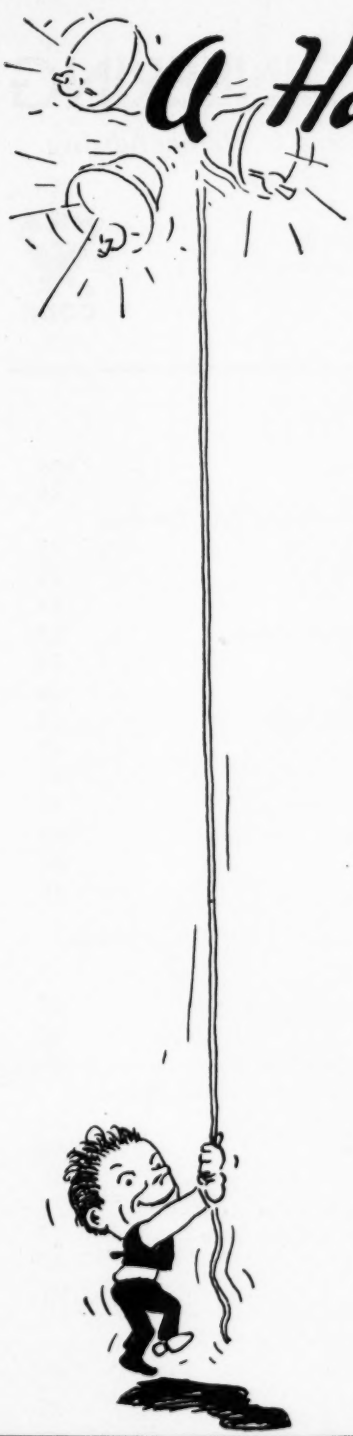
Sold only through recognized plumbing jobbers. Ask for it by name—*Bridgeport*. The name is plainly stamped on the tubing. A postal card will bring our new booklet telling all about the tubing.

BRIDGEPORT BRASS COMPANY
Bridgeport, Conn. Estab. 1865



WE ARE CO-OPERATING
BETTER • HOUSING
PROGRAM

Bridgeport Copper Water Tube bends under the strains and stresses of settling ground, without injury.



A Happy New Year ... ALL YEAR!

—and a prosperous year for plumbers who handle Vogel Products.

This is our 27th year working with the plumber and jobber. Through thick and thin—good years and bad, we've stuck to our policy of selling only through these outlets; and the plumber and jobber have stuck with us. We're satisfied—and hope you are.

So here's to a happy and prosperous year, and needless to say, we're still with you.

JOSEPH A. VOGEL COMPANY
Wilmington, Del.
St. Louis, Mo.

VOGEL PATENTED *Products*

Established 1889

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President and Treasurer

E. DE FOREST WINSLOW
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Room 819, 110 East 42nd St.

CLEVELAND, OHIO—
310 Citizens Building

TERMS OF SUBSCRIPTION
Anywhere in the World, $2.00 per year.
Current copies, 25c each
Back numbers, 50c each

Entered as Second Class Matter on September 26, 1932, at the Post Office at Chicago, Illinois, under the Act of March 3, 1879.

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DOMESTIC ENGINEERING

Plumbing & Heating Contracting & Merchandising

Vol. 145, No. 1

Whole
No. 2002

Published Monthly by
Domestic Engineering Co.
1900 Prairie Avenue, Chicago

NRA CODE

JANUARY, 1935

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LISTEN HARD

. . . even then you hear only a whisper

THE quiet flush valve and closet combination is here! The flush valve is so silent that you can hear only a whisper as it operates. Gone are the hisses which formerly spread over a wide area annoying some and embarrassing others.

To meet the silence of this remarkable flush valve we have designed an extremely quiet closet which can not be heard outside the room where it is operated. This combination is known as

THE SI-FLO*

Here is the answer to complaints about noisy flush valves and noisy closets. At last you can do something about them both.

The Si-Flo flush valve can be used to replace practically any type of noisy flush valve now in use. It roughs-in on standard measurements.

Don't wait for your customers to tell you that their flush valves are noisy. Send them literature on this practically silent valve, also, the Si-Flo Combination. We'll supply it, imprinted with your name and address.

PATS. PENDING

K-1001—SPEAKMAN Chromium Plated Si-Flo Closet Flush Valve with 1" capped angle stop for right or left inlet, wall flange, metal oscillating handle, flush connection, spud coupling nut and flange for 1¾" top supply.

K-450—Si-Flo Combination with elongated bowl

SPEAKMAN COMPANY
Wilmington, Delaware

SPEAKMAN *Showers & Fixtures*

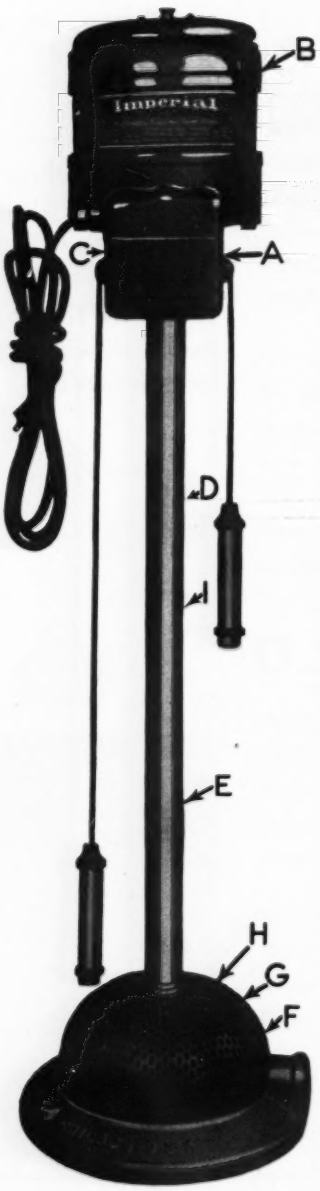
*Name, meaning Silent Flow, registered U. S. Patent Office

FLOATLESS

An Outstanding Achievement in Electric Sump Pumps

by

IMPERIAL



All-Bronze Construction

IN the Imperial Floatless Electric Sump Pump a vital change has been made in the design of the level control. This change removes a long standing handicap by applying a method never before used in sump pumping.

The members of the Imperial engineering staff who prepared the designs are already responsible for the most effective sump pumps now on the market. The electrical principle involved has been used with great success in maintaining delicate level adjustments, in various forms of industrial operation. Imperial has the exclusive rights for its use on sump pumps.

Absolutely Dependable Operation Under All Conditions

No float is used. The motor starts the instant a given water level is reached. This is determined by two adjustable electrodes, which hang down into the pit. Note the following features:

A. Floatless electrical control, and lower pump-down. When the water reaches the higher of the two electrodes, it closes a circuit, and the pump starts to operate, continuing until the water falls below the level of the lower electrode. In addition to thoroughly positive action, the pump-down is extremely low; see the position of the lower electrode—the water can be pumped to within 3 inches of the bottom of the pit.

B. Custom-built motor for vertical operation. Does not give radio interference.

C. The circuit breaker is incorporated with the electrical control device—an assurance against injuries from motor overload.

FLOATLESS

D. All-bronze construction, preventing rusting.

E. Impeller revolves at 1750 R.P.M., and the shaft turns in oilite sleeve bearings.

F. Adjustable pivot bearings on impeller reduce wear.

G. Forged impeller with large clearance. Perfect balance and longer life are assured by this feature, which is exclusive with Imperial. The extra clearance also avoids clogging and wear on the impeller.

H. The largest strainer area of all sump pumps on the market, in proportion to capacity. This effectually prevents foreign matter from entering the pump. Can be raised to the top of the shaft for convenience in cleaning.

I. The ruggedness of all parts, and the reliability of every detail of operation are proved by tests representing years of continuous operation.

List Price

Made in 6 Sizes For All Sump Depths

$39.50 UP

The table shown at foot, below the illustration, gives a list of the different sizes in which the Imperial Floatless Sump Pump is made, with prices, measurements and other details. At the right of the table is a convenient coupon for ordering the model required, or applying for illustrated literature.

Model A Model B Model C Model D Model E Model F

MODEL	Pipe Conn.	Max. Sump Depth	Height of Pump	Weight Boxed Pounds	Size of Motor	List Price
A	1"	2'	3'-4½"	50	1/6	$ 39.50
B	1¼"	2'	3'-6"	70	¼	65.00
C	1¼"	3'	4'-8"	80	¼	85.00
D	1¼"	4'	5'-6"	100	¼	100.00
E	1¼"	6'	7'-6"	120	¼	125.00
F	1¼"	8'	9'-6"	140	¼	150.00

To order any of the above models, or to apply for literature, kindly make a check mark in the proper space on the coupon at the right, fill in address, and mail.

THE IMPERIAL BRASS MFG. CO.
1200-31 West Harrison St., CHICAGO

COUPON

IMPERIAL BRASS MFG. CO.
1200-31 West Harrison St., Chicago

Please ship to me through.....(jobber) the Imperial Floatless Sump Pump model as checked below.

☐ Model A ☐ Model C ☐ Model E
☐ Model B ☐ Model D ☐ Model F

☐ Illustrated descriptive literature, giving full details and specifications of all models.

NAME .....

STREET .....

CITY..... STATE.....

CHICAGO FAUCET NEWS

Issued Monthly by The Chicago Faucet Co., 2700-22 N. Crawford Ave., Chicago, Ill. Vol. 3. No. 3

1935! COME ON, LET'S GO!

BUILDING BOOM IN PROSPECT

Modernization Movement Under Way

GOOD OUTLOOK FOR PLUMBING INDUSTRY

Chicago Faucet Line More Comprehensive Than Ever

The last months of 1934 saw an unmistakable revival of interest in building and modernization. The year now beginning will see widespread realization of plans and hopes. The dam of fear, financial stringency and hesitancy must yield to the pressure of the five-year accumulation of needs deferred and millions upon millions of dollars worth of pent-up projects will come surging through into active reality.

WE ARE CO-OPERATING — BETTER HOUSING PROGRAM

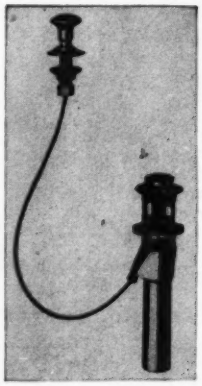
This is not mere hope translated into groundless prophecy. The indications are plain for all to see. Federal government sponsorship and encouragement of loans, a more liberal attitude on the part of banks, the awakening of renewed interest in real estate, increasing evidence of a housing shortage—all these factors, added to the natural inevitable reaction to pressing needs, will bring concrete results. The modernization movement, spurred by the encouragement of the FHA, is well under way; and there can be little question but that a sizable volume of new construction will soon be in progress.

Prominent in this picture, stands the plumber; for the plumbing industry will play a major part in whatever new construction develops. The outlook is better than at any time during the last four years.

Meet the opportunity with Chicago Faucets. They insure quality in every

(Continued at Bottom of Next Column)

FLEXROD WASTE EARNS GENERAL ACCEPTANCE IN RECORD TIME



Eight months ago, the Flexrod Pop-up Lavatory Waste was a new, untried device to the plumbing industry. True, it had undergone months of hard service tests and proved itself beyond a doubt to its sponsors. But it was a radical departure from conventional types of basin wastes—different in construction, different in operation. Many plumbers viewed it skeptically. "Will it work satisfactorily?," "Will it stand up in service?," "Is it strong enough?". These and similar questions indicating doubt followed Flexrod's introduction. But its very novelty and its simplicity made instant appeal. Plumbers everywhere "gave it a try." They became enthusiastic. Re-orders followed. The "word" traveled fast. Flexrod won universal acceptance. Today, only a few months after its first announcement to the trade, the Flexrod Pop-up Lavatory Waste is as firmly established in the confidence of plumbers who handle it as many specialties after years of demonstrated efficiency. If you are not yet on the Flexrod bandwagon, get on; for it's a wonderful piece of plumbing merchandise.

Chicago Faucets never throw you for a loss. Their quick sales appeal moves them rapidly, and their stabilized price protects your profit always. It pays to carry Chicago Faucets regularly in stock.

By all means, see that your catalog file contains a Chicago Faucet catalog and price list.

Best Wishes for a

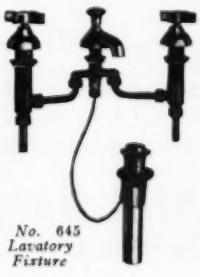
HAPPY and PROSPEROUS NEW YEAR

(Continued from First Column)

detail—the latest in design; finest materials and workmanship; the famous interchangeable, renewable operating unit; first cost the only cost. The Chicago Faucet Line is complete for every sanitary purpose, kitchen, bathroom, laundry and incidental uses. Get better acquainted with Chicago Faucets. Study their construction, their principle of operation—closing with, instead of against, the pressure. Consider their economy resulting from the fact that their only wearing parts are as easily renewable as an electric light bulb and without disturbance to the faucet proper. Think what all this means to your customers and to you. Then make certain that you have Chicago Faucets always in stock. They comprise a profitable line to handle.

"Econochrome" Signifies High Quality Bath and Lavatory Fixtures Moderately Priced

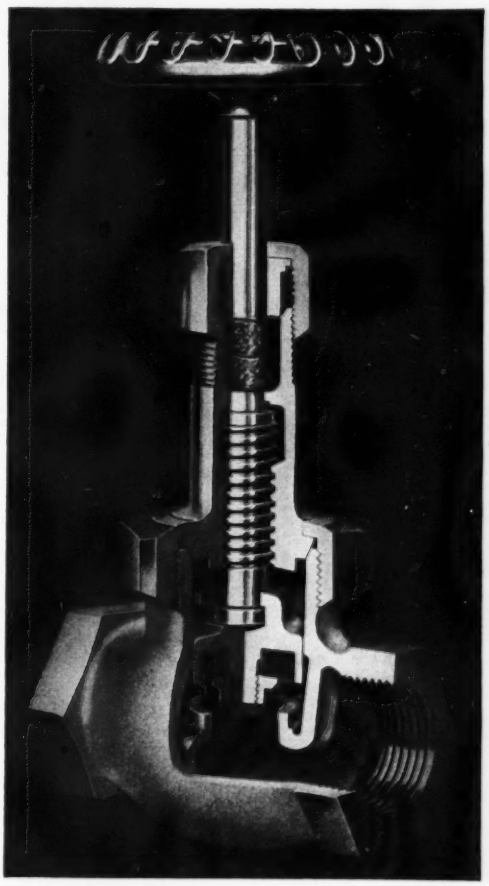
Your trade will "go for" these really fine fixtures in a big way. Splendidly made throughout, with brass spouts and cast brass four-arm handles and with lifetime chromium plating, they are an outstanding value at their price. Remember, they contain the same famous Quaturn operating unit as the highest-priced Chicago fixture.



No. 645 Lavatory Fixture

Announcing FAIRBANKS

Improved Globe and Angle VALVES



These *improved* Fairbanks Bronze Valves are designed to reduce maintenance trouble and expense. They possess many important features such as:

1. The radial seat, between body and bonnet, not only insures a tight joint at this important point but also perfect alignment of all parts. The proper alignment of parts decreases wear; and, when the valve is taken apart for disc replacement, the alignment will be perfect. This seat is drawn to a tight joint by the union nut without sliding or scraping the surface of seat, thereby increasing the life of the valve and assuring a tight body-joint after every assembly.

2. The disc ring not only serves efficiently in the control of steam but also on hot and cold water. It is composed of a very high percentage of long-fibered asbestos, compounded with the necessary vulcanizing elements and given a special cure that produces a most efficient and reliable disc ring.

3. The disc holder is of standard dimensions, permitting the use of other standard makes of disc rings if desired.

4. The stem is of rolled rod bronze, averaging 65,000 pounds tensile strength. More than five clean-cut Acme threads are at all times in contact with the bonnet.

5. The union nut is of heavy bronze with large hexes for a firm wrench grip and permits removal of bonnet with less risk of damage.

6. The protected top seat above the threads on stem gives greater assurance of a clean, tight joint when the valve is fully opened for the purpose of repacking the valve under pressure.

7. The ventilated, malleable iron handwheel assures a firm, cool grip. The bronze nut holding the wheel is well below the wheel rim surface, thus protecting the hand. This nut is securely held with a lock washer.

Examination of this valve will disclose many other evidences of careful engineering such as the interchangeability of all parts of globe and angle valves, extra large seating surfaces and nonbinding disc regardless of position of valve.

Write for copy of our new catalog.

THE FAIRBANKS CO.

Manufacturers of Valves, Trucks and Wheelbarrows

395 Lafayette St. New York, N. Y.

Boston, Pittsburgh—Distributors in Principal Cities

MAIL COUPON TODAY!

The Fairbanks Co., 395 Lafayette St., New York, N. Y.
Without obligation on our part, kindly send a copy of your catalog.

Name .....

Address .....

City ..... State .....

TO MEET PRESENT-DAY CONDITIONS

Select McDONALD PLUMBING BRONZE

A Complete Line Supreme Quality SENSIBLE PRICES

Early applications for F. H. A. loans indicate that Plumbing will play a big part in modernization work. It is evident that the dealer who can offer modernly styled fixtures and fittings of McDonald quality at a reasonable price will profit.

Gracefully designed and with glistening finish, these bath and kitchen fixtures will appeal to the home owners the minute you show them. This line is beautiful enough to please the most discriminating modern housewife. The requirements of dependable, lasting service are all fulfilled. And the prices are within the average home owner's budget.

McDonald's complete line of products are available from all the leading wholesalers in the country as well as from our own branch offices. Your inquiries are welcomed.

Plate E3636-A
Combination lavatory fixture with pop-up drain and metal Art Design handles, escutcheons and spout.

Plate E3992-B
Concealed bath fixture, with Metal Art Design cross handles, escutcheons and spout; also furnished with regular handles, escutcheons and spout.

Plate E3419-B
Combination sink faucet with swing spout and metal soap dish and handles.

Plate E3614
Angle lawn faucet with wheel key.

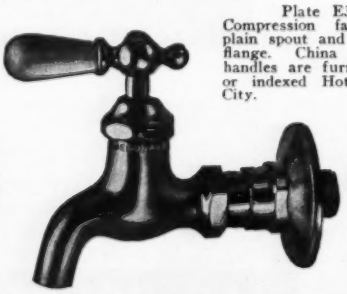


Plate E3373
Compression faucet with plain spout and adjustable flange. China or metal handles are furnished plain or indexed Hot, Cold or City.

Plate E3658
Compression faucet with Metropolitan style metal handle (high spout).

Plate E3662
Double bath faucet.

In addition to Bronze Plumbing Material, McDonald Products include Iron Hand and Wind Mill Pumps and Cylinders, Power Pumps and Water Supply Systems; Cast Iron Plumbers' Specialties. Contractors are requested to write for catalogue of lines they are interested in.

EST. 1856 McDonald

A. Y. McDONALD MFG. CO. Dubuque Iowa

Omaha, Neb. . . . Minneapolis, Minn. . . . Des Moines, Ia. . . . Kansas City, Mo. . . . Sioux City, Ia. . . . Grand Island, Nebr. . . . Hutchinson, Kans.

LET'S LOOK INSIDE

● Look through a section of STREAMLINE Copper Pipe and Fittings—here are no rough projections, inside shoulders, or abrupt pipe ends. The inside is almost as uniformly smooth as a gun barrel. The pipe is recessed into the fitting in such a way that the wall of the fitting is continuous. (See Illustration.)

The inside shoulder of the fitting, against which the pipe rests, is approximately the same height as the thickness of the pipe wall, thus forming a flow area in a STREAMLINE installation which is uniform and unrestricted through pipe and fitting. There are no anchorage points to encourage accumulation of foreign matter to lessen the flow and eventually clog the pipe.

A STREAMLINE installation cannot rust or clog. Vibration cannot make it leak.

Send for our catalog F and Solder Instruction Card. Yours for the asking.

TRADE MARK
STREAMLINE
REG. U.S. PAT. OFFICE
FITTINGS AND COPPER PIPE

STREAMLINE PIPE AND FITTINGS
PORT HURON, CO. MICHIGAN
DIVISION OF MUELLER BRASS CO.

Prices Slashed UP TO 35%

"Straitline" Monel Metal Cabinet Sink, 25" x 60", with 8" back splash, complete with 60" steel base cabinet. Price, with crumb cup strainer but without faucet, $105.50. Same Sink-and-Cabinet Unit, with 1½" back (without faucet), only $99.50.

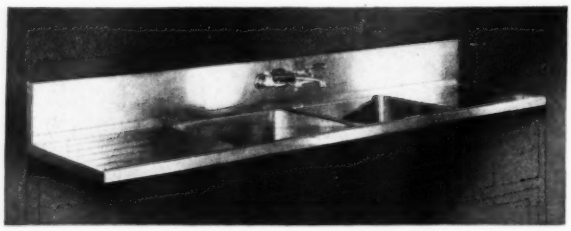
This Special Sink-and-Cabinet Unit NOW ONLY **$105.50**

Delivered—East of the Rocky Mts.

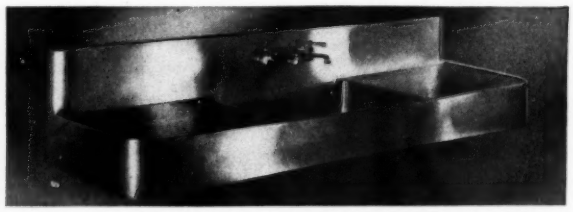
With 1½" back, *ONLY* $99.50

Delivered—East of the Rocky Mts.

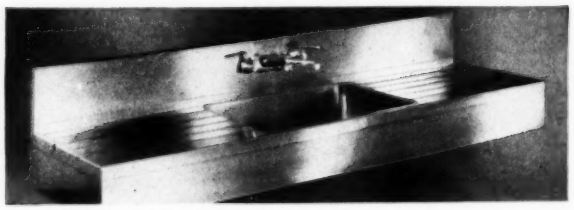
"Straitline" Monel Metal Cabinet Sink (25" deep). Available with single or double bowls, single or double drainboards, and in lengths from 48" to 120", with either 1½" or 8" back splash.



"Straitline" Monel Metal Cabinet Sink (21" deep). Available with single or double bowls, single or double drainboards, and in lengths from 41" to 82", with either 1½" or 8" back splash.



"Streamline" Monel Metal Kitchen Sink. Also available with single drainboard with or without corner splash, and in lengths 41" to 72".



"Straitline" Monel Metal Kitchen Sink. Available with single or double bowls, single or double drainboards, and in lengths from 41" to 82" with either 1½" or 8" back splash.

Prices on all standardized Monel Metal Sinks and Cabinet Tops are cut in proportion . . . that's cooperation with the N.H.A.!

IN the Government's drive for new building and remodeling, here's help for you to get *your* share:

Prices on ALL Monel Metal sinks and cabinet tops are slashed! The figures quoted on the Sink-and-Cabinet model shown above are typical of new prices for the whole line.

These big reductions are all on *standardized* INCO models. No changes in specifications. No cheapening in quality. Instead, the same weights and finish, the same careful workmanship.

Now, with prices so low, and with 57 models of standardized sinks and cabinet tops to offer, you are in good position to urge *all* your customers to put in Monel Metal *at once*.

A complete all-Monel Metal kitchen is a grand sight . . . even after years of use. Monel Metal is rust-proof, strong as steel, resistant to corrosion and easy to clean. Being a *solid* metal, it never chips, cracks, peels or "wears off."

Send for the new catalog and list of latest prices of "INCO Standardized Monel Metal Sinks and Cabinet Tops." Included are plan and sectional drawings of all models and convenient tables of dimensions. Address your inquiry to our national distributors, the Whitehead Metal Products Company, 304 Hudson Street, New York, N. Y.

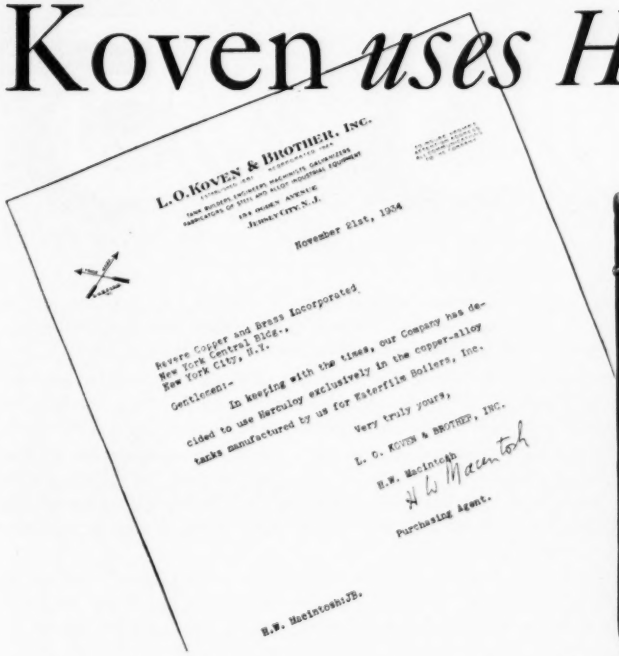
THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET NEW YORK, N. Y.

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

Monel Metal

Koven *uses* HERCULOY

(REG. U. S. PAT. OFF.)



L. O. KOVEN & BROTHER, INC.
230 PARK AVENUE
JERSEY CITY, N.J.

November 21st, 1934

Revere Copper and Brass Incorporated
New York Central Bldg.,
New York City, N.Y.

Gentlemen:-

In keeping with the times, our Company has decided to use Herculoy exclusively in the copper-alloy tanks manufactured by us for Waterfilm Boilers, Inc.

Very truly yours,

L. O. KOVEN & BROTHER, INC.

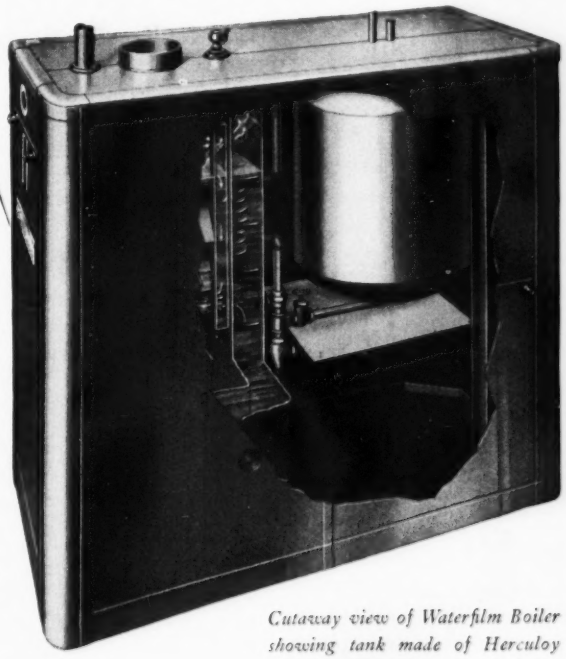
R.W. MacIntosh
H W Mackintosh
Purchasing Agent.

R.W. MacIntosh:JB.

L. O. Koven & Brother, Inc. are proud that the boiler they are manufacturing for Waterfilm Boilers, Inc. is being so well received by the trade.

It heats quickly and cools slowly . . . is easy to install, easy to clean, and easy on the pocketbook.

It is built of the very best material, manufactured by skilled workmen, and backed by 55 years of experience. It is up to the minute in every respect and built according to the A.S.M.E. Code.



Cutaway view of Waterfilm Boiler showing tank made of Herculoy

• Koven and Waterfilm Boilers, Inc. can be proud of their new boiler. And Revere can be proud, too, because Herculoy was selected for the tank used in this boiler. Herculoy will be used *exclusively*, because it is the most modern of the copper alloys . . . because it combines the desirable qualities of high-strength, durability, and workability.

Herculoy, Revere's patented silicon-bronze alloy, has the strength of mild steel and corrosion resistance approximating that of pure copper. Of particular interest to manufacturers is the fact that Herculoy may be readily welded.

When you have a prospect for a range boiler or tank, recommend one of Herculoy. In addition to its durability, the rich golden color of Herculoy adds an eye sales appeal. This alloy maintains the same high standards of quality as all Revere copper, brass and bronze products. Revere metal, plus your own skilful workmanship, is a sure guarantee of service and satisfaction to your customers.

Revere Copper *and* Brass

INCORPORATED

Founded by Paul Revere 1801

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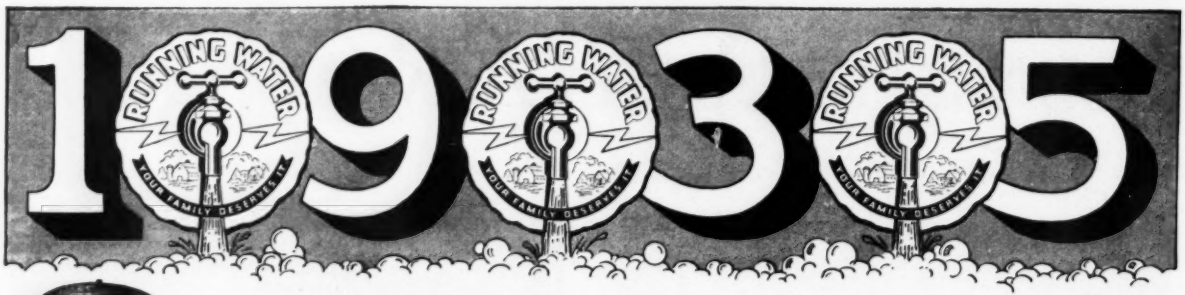


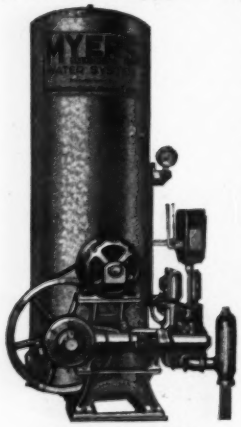


FIG.2510

Through the changing years there has always been a stability to the Myers line of Pumps and Water Systems and the policies behind their production and distribution that has long been a source of profitable business for Myers Dealers.

We are proud of this record. A record that has not only contributed to our success as manufacturers but one that has enabled our dealers to supply their trade with pumping equipment that has been uniformly dependable, satisfactory and profitable.

This is history but history repeated becomes news. At the beginning of a New Year, our unmatched facilities, the completeness of our line and its wide adaptability, our exacting quality standards, our consistent national publicity, our exceedingly favorable prices, will continue to lead to old and many new avenues for pump and water system sales during 1935.

Think this over but don't wait too long. Get set to take advantage of the Spring Campaign, starting February 1st, 1935, "To Sell Running Water to the Rural Market" and to all other markets in your locality where there is sure to be a largely increased demand during the months ahead.

Write or wire.

THE F. E. MYERS & BRO. CO.

Ashland, Ohio

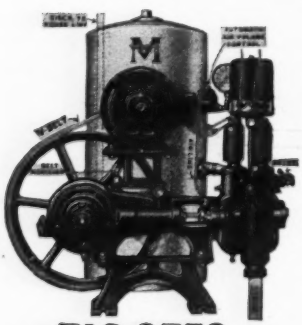


FIG.2739

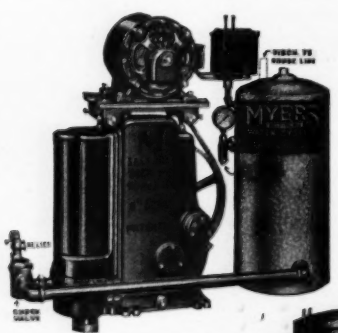


FIG.2741

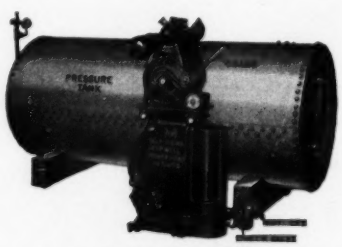


FIG.2551

FIG.2631

FIG.2700

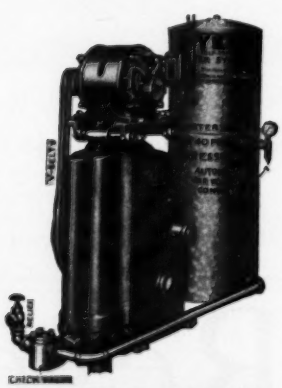


FIG.2702

MYERS WATER SYSTEMS

AN IDEA THAT SOLD MILLIONS OF HOFFMAN VALVES

. . . *is today more successful than ever!*

"I'LL PUT THIS HOFFMAN VALVE ON FOR A WEEK'S TRIAL. IF YOU DON'T NOTICE AN AMAZING IMPROVEMENT IN HEATING, I'LL TAKE IT OFF AND YOU OWE ME NOTHING."
ONE WEEK LATER
"YOU WIN! THAT RADIATOR IS HEATING WONDERFULLY. GO AHEAD WITH A COMPLETE HOFFMAN INSTALLATION."

Hoffman Free Comfort Test . . . A Proved Way to Land Modernizing Contracts

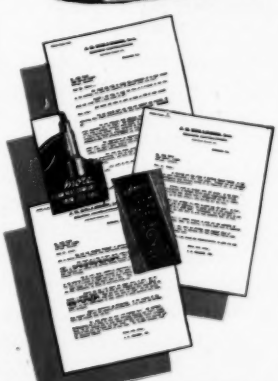
Ever since we discovered this simple little selling idea, heating contractors everywhere have used it successfully. It has sold literally millions of Hoffman Vacuum Valves . . . for the reason that it demonstrates beyond question the comfort and economy of a Hoffman Vacuum installation.

All you have to do is to put a Hoffman Vacuum Valve on a hard-to-heat radiator, and let your prospect watch results for a week. After seeing this one radiator heat quicker and hold heat longer, he can easily picture the extra comfort and greater economy if all his radiators were similarly equipped.

And don't forget to remind your prospect that an N. H. A. loan is available to him at the easiest payment rates ever offered. And that Hoffmanizing is a preferred type of modernizing because it is a *self-liquidating* investment—quickly paying off both principal and interest of the loan out of fuel savings.

Remember, too, that only Hoffman Vacuum Valves have the superior vacuum-holding *Double Air Locks* and the *Double Shell* for protection against water leakage.

Hoffman Specialties are sold by leading wholesalers of heating and plumbing equipment everywhere.



HOW TO LINE UP PROSPECTS FOR A HOFFMAN FREE COMFORT TEST

In cooperation with the N. H. A., Hoffman has prepared a valuable selling help for you—absolutely free! Send us names of 10 home owners you consider good prospects for a Hoffmanizing installation and we will furnish you with three strong Direct-Mail pieces. They explain fully the advantages of Hoffman Vacuum Valves and offer the Free Comfort Test to your prospect. Mail the coupon today for complete details.

HOFFMAN VACUUM VALVES

Also Makers of Hoffman Traps, Supply Valves and Hoffman-Economy Pumps

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Rush me full information about your Free Direct-Mail Offer and N. H. A. Co-operative Merchandising Plan.

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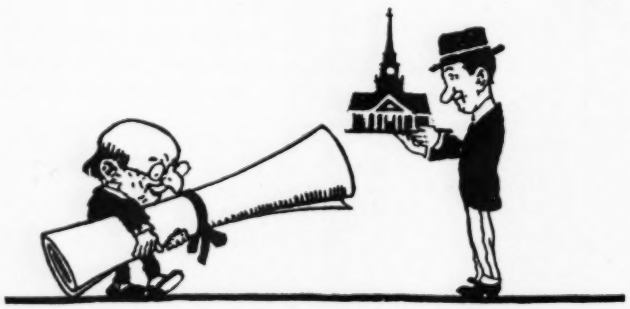
How We Will Help You Land That Church Heating Job



DID you know that more money has been loaned due to the Federal Housing Act, for remodeling old heating and putting in new, than for anything else? Heating, to date stands way up top of the heap.

Churches are taking advantage of such loans and fixing up their heating needs. How about the churches in your section?

We are prepared to work with you shoulder-to-shoulder on landing the jobs. In the first place, we can offer you one valuable help that no other concern can. We can send you a catalog prepared especially about church heating. Just church heating and nothing else.

It's the sort of thing to send to the church committee. They will welcome it because it contains in handy form exactly the things they want to know. It's all about church heating. Nothing else.

All you do is send us the names and addresses of the members of the committee and we will mail them the book. Then when the time comes for you to meet with the committee, one of our experts in your section, will if you wish, be only too glad to go with you and help you land the job.

Made to Fit Your Needs

The book on church heating is based on a great many interviews with church committees and architects, to find out exactly what information they wanted on heating.

It's so good that architects use it as a regular hand-book. Chairmen of Committees have written us their thanks for its fine helpfulness. There is no other book of its kind. Again Burnham is ahead of the procession.

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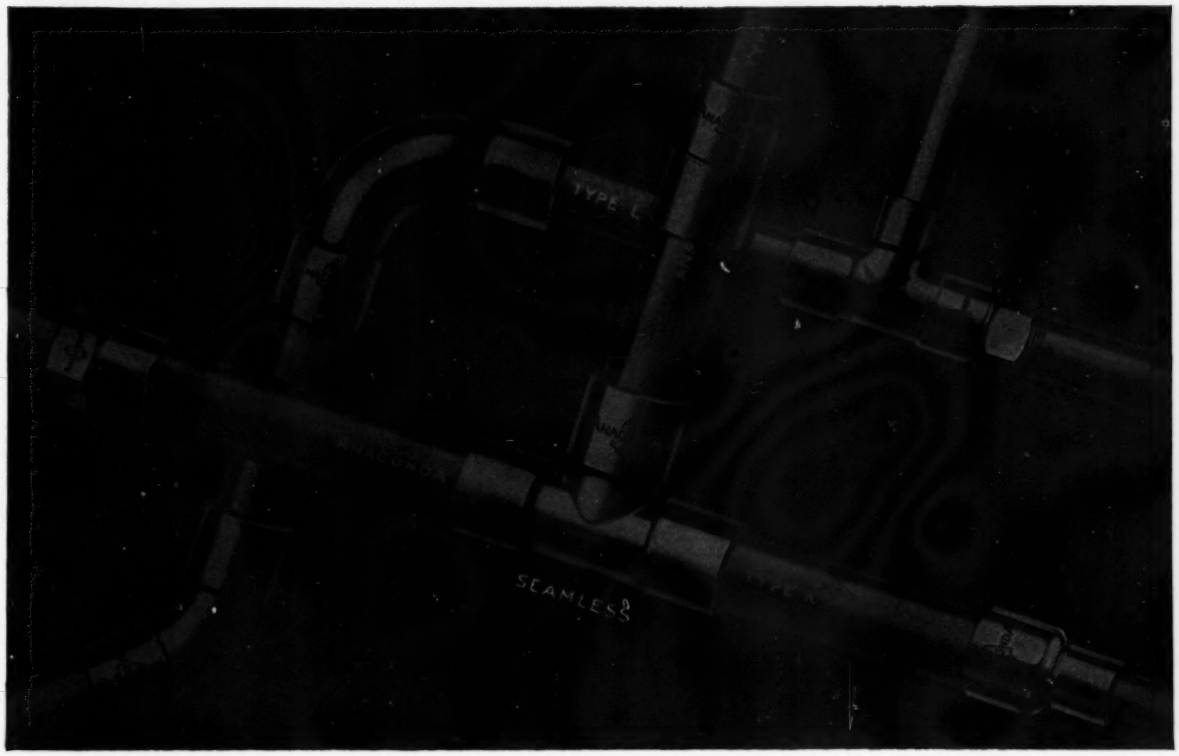
IRVINGTON, NEW YORK

Representatives in All Principal Cities of the United States and Canada



WROUGHT SOLDER FITTINGS

now round out our complete service

TO ENABLE the trade to use Anaconda products for practically every copper tube and fitting installation, we are now furnishing a complete line of Anaconda Wrought Copper Fittings—elbows, tees, couplings and unions, including a complete range of reduction and adapter combinations.

Supplementing our present line of Anaconda Cast Bronze Solder Fittings, these new wrought fittings provide copper to copper connections, and are uniform in quality and free from porosity. The use of precision gauges in the manufacture of both Anaconda Tubes and Fittings, insures accuracy and conformity to the close tolerances required for dependable solder connections.

Anaconda products for copper tube installation are now available in the range of sizes shown below. The many contractors who prefer Anaconda products will welcome this all-inclusive line of copper tubes and fittings for practically every need —not only in plumbing and heating, but also in refrigeration, air conditioning, oil burner and sprinkler installations, and industrial piping.

ANACONDA DEOXIDIZED COPPER TUBES—*Types* "K" *and* "L"	⅛" TO 8" *incl.*
ANACONDA WROUGHT COPPER SOLDER FITTINGS	⅜" TO 2" *incl.*
ANACONDA CAST BRONZE SOLDER FITTINGS	¼" TO 6" *incl.*
ANACONDA CAST BRONZE SOLDER VALVES: GATE VALVES	⅜" TO 2" *incl.*
GLOBE AND STOP & DRAIN VALVES	⅜" TO 1" *incl.*
ANACONDA CAST BRONZE FLARED TUBE FITTINGS	⅛" TO 2" *incl.*

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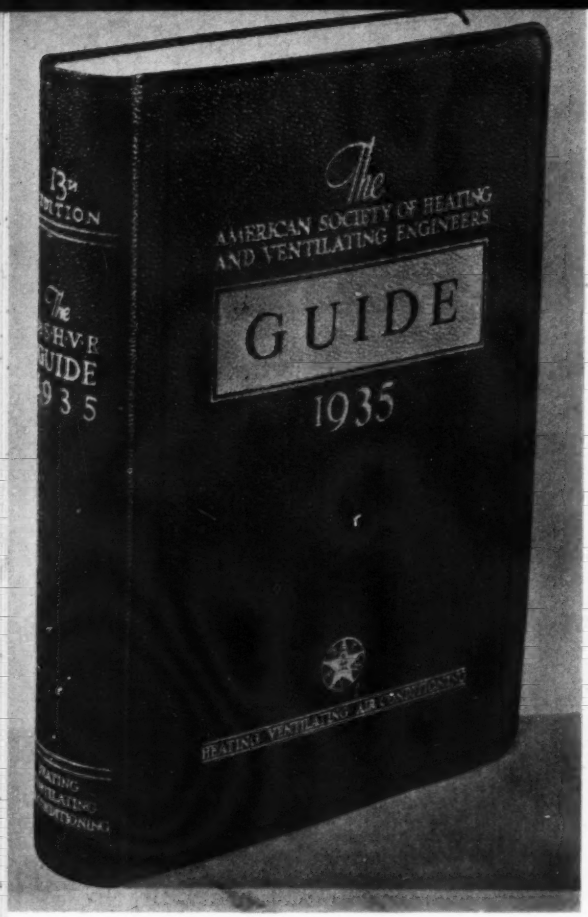

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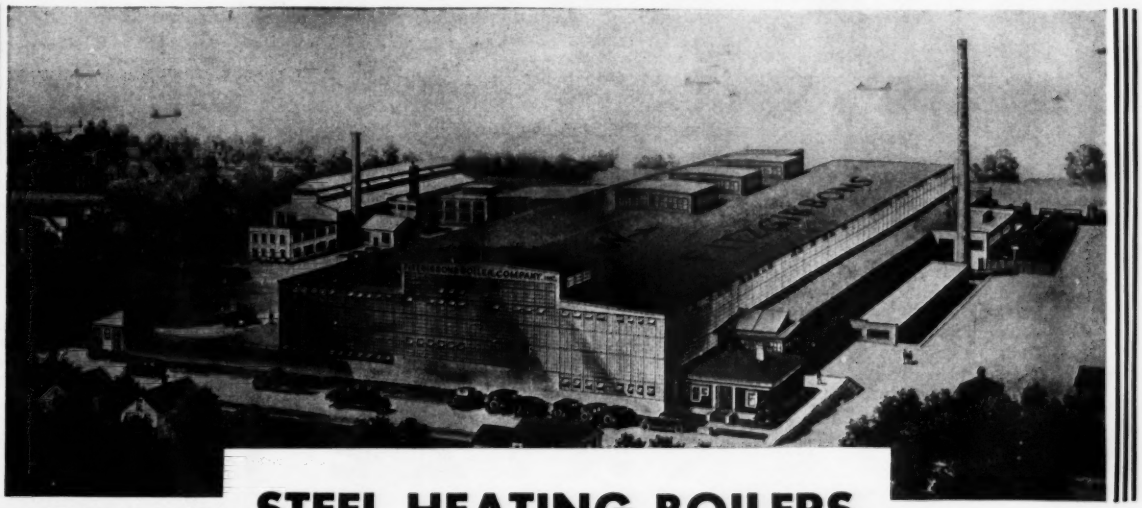
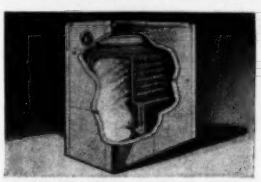


STEEL HEATING BOILERS
meet every heating need

If you have a heating project, residential, commercial or industrial, you will find in the FITZGIBBONS line *just the right boiler to meet the requirements.* This holds true for any size of project, for any kind of fuel and for any heating system, and applies equally to new projects and to modernization jobs.

And the name "FITZGIBBONS" on the boiler you select does more than indicate the maker. It means that the boiler embodies the experience, the refinements and the perfection of a half century of aggressive steel boiler manufacturing and progressive development. It is your guarantee of the same quality, the same high efficiency and the same operating economy that have satisfied thousands upon thousands of owners and have won and held the esteem of the entire heating profession.



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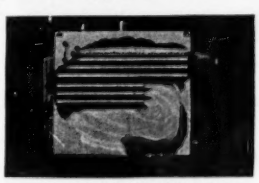

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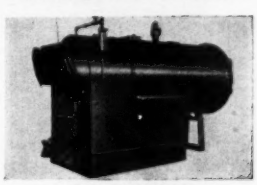

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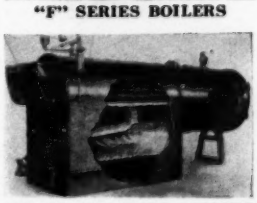

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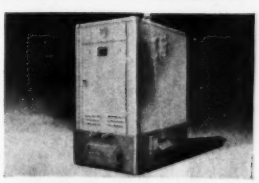

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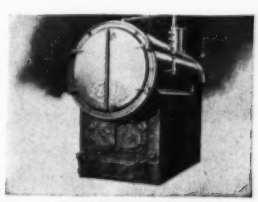

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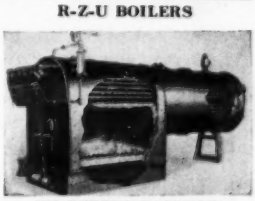

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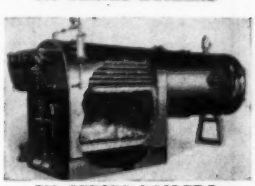

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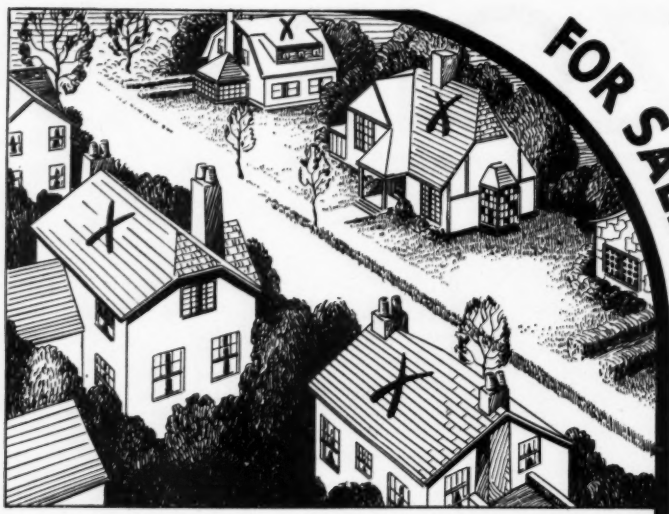

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YOU can keep your men busy and build yourself a really profitable business by selling Thrush Flow Control System for automatic Summer-Winter service on automatic hot water heating plants in your community. Go over the list of all the installations made by you or your competitors in the past year and you can pick out *plenty of live prospects.*

Thrush Flow Control, which can be installed on old or new jobs with little labor, makes any hot water heating plant so much more efficient with such slight additional investment that *sales are easy.* Tie up with the Better Housing Program. The government will lend the money if you can interest your customers in modernization work. What finer opportunity for increasing your sales could you possibly imagine? *Mail the coupon now for our descriptive literature.*

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Please send booklet describing Thrush Flow Control Heating System and its advantages for use with automatic firing devices.
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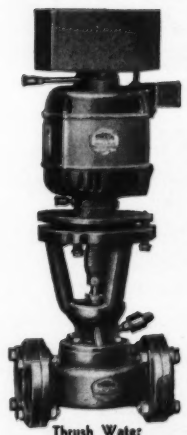

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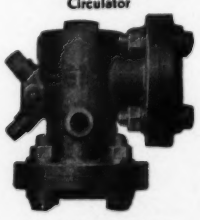


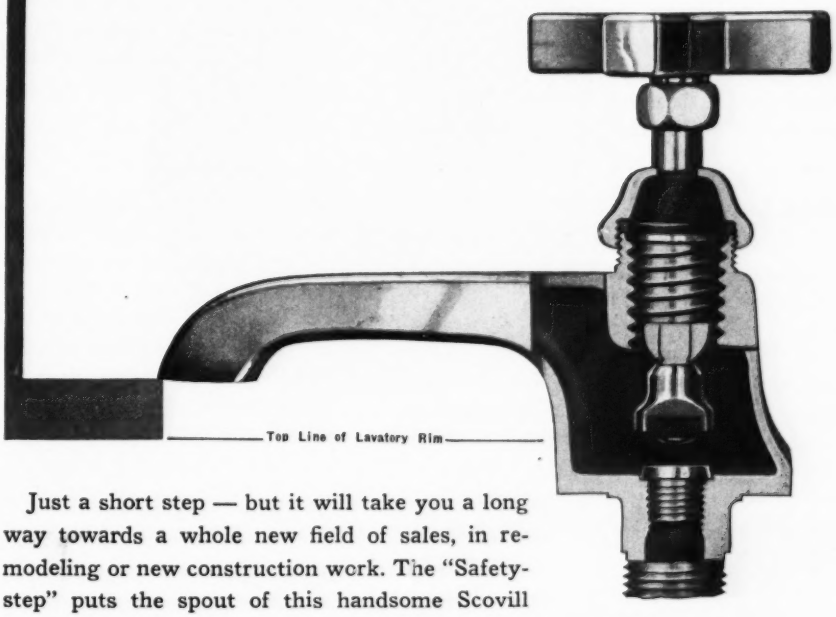
Thrush Flow Control Valve (Patented)

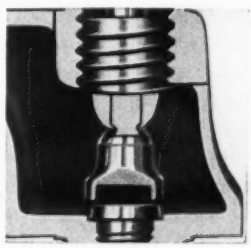
THRUSH

FLOW CONTROL FOR HOT WATER HEAT

"SAFETY-STEP" FEATURES

NEW SCOVILL FAUCET





Just a short step — but it will take you a long way towards a whole new field of sales, in remodeling or new construction work. The "Safety-step" puts the spout of this handsome Scovill lavatory faucet safely above the lavatory rim. Back syphonage is impossible! More and more municipal sanitary codes demand such protection.

Scovill's quality construction gives this faucet many other sales features. The removable tough bronze seat assures long life. The heavy seat-washer is mounted in a deep cup and joined to the stem by a chatter-proof swivel. The original washer should last for years.

Quick-action handle gives a full flow of water with one full turn. A double-pitch thread makes this possible. Whether the valve is open or closed, the whole thread is enclosed in the body of the faucet . . . construction that removes an ordinary cause of wear.

Ask your jobber about this high-class addition to Scovill's famous line. Or write to the address below.

SCOVILL

Scovill Manufacturing Company, Plumbers' Brass Goods Division, Waterville, Connecticut

Scovill Flush Valves, Shower, Bath and Lavatory Fittings. Miscellaneous Plumbers' Brass Goods

SCOVILL

NRA

BETWEEN OURSELVES

Thanks:
"We want to express our appreciation of Domestic Engineering. It is a splendid paper."
W. G. L.,
Michigan

Kill That Story

Start a story going the rounds and it is liable to just keep on going and going, getting nowhere until someone with real facts steps in and stops it. Well, that is the kind of a job DOMESTIC ENGINEERING likes to do. In this issue we do it again.

Our Readers Lead

A lot of people have kept on talking about plumbing and heating dealers not being merchandisers. Well, maybe that was true years ago but a good many thousands of our readers prove that it's not true today. Take this big federal housing program which every branch of the building industry has been urged to support. Enough business men have taken this advice to bring a good many millions of dollars worth of business into the building field. And of all of the dealers in the building trades, the plumbing and heating dealers are way out in front in active merchandising support of the FHA.

Biggest Advertisers

In this issue we give you a count of actual advertisements selected from all over the country and inclusive enough to be accurate. You may be surprised to see just how alive and alert the plumbing and heating dealer is in taking hold of good sound merchandising ideas.

Useful Ideas

And this issue not only tells you what a fine record other dealers have made in active salesmanship, but it tells you what they did. Samples are given of good advertisements, making your job easier when you decide to either increase your present advertising or to start such advertising for the first time. DOMESTIC ENGINEERING has been a leader for years in helping its readers do a sound and profitable merchandising job and many of them are using to advantage now, the suggestions and ideas which they secured from reading DOMESTIC ENGINEERING.

A Grand Prize

You will find the record in this issue of six live plumbers who won our January prizes for successful support of the FHA program. And you will find examples of what they did to win those prizes. But perhaps you will be more interested in the announcement that the *GRAND PRIZE* of $100.00 will go to the one who offers by Jan. 15, the best examples of how the FHA idea was used to produce business.

And 90 More

Of course, only one, selected by three nationally known judges, can win the *GRAND PRIZE* but we are giving away 90 other prizes so that you will want first of all to read this announcement in this issue and then send in copies of your advertisements, your sales letters or a story of your most interesting sales experience, so that you will be in line for consideration when the judges pick the *GRAND PRIZE* winner.

Follow The News

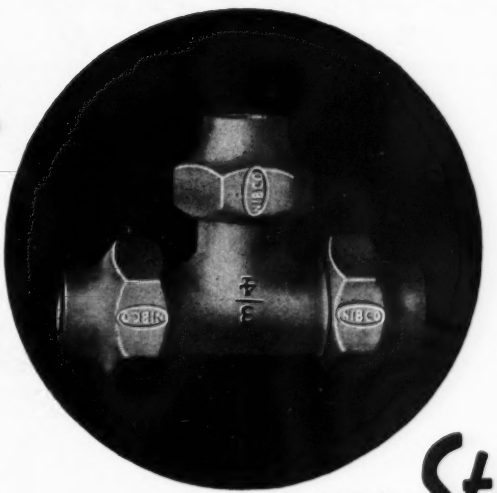
Some really significant events have taken place in the last few months which you as a member of the plumbing and heating industry should follow. We all know the past four or five years have made a lot of changes which keep most of us busy in studying and following them so that our business will benefit. To intelligently make a change in your business methods means first of all that you have to know what is going on and right there is where DOMESTIC ENGINEERING is more necessary to you today than ever before.

In Your Business Paper

When one manufacturer talks about a better than 100 per cent increase in his business and other manufacturers report increased sales—when this increase is principally in staple fixtures in which competition from mail order and d.t.u. stores has been keenest—when more and more retailers report their success in meeting competition from these outside groups, all of this is tremendously significant to you and your own business. It's not the kind of news which you would find in your local newspaper or general magazines. You have to rely on a business paper like DOMESTIC ENGINEERING to uncover and bring you this news.

Your Editor

This Little Fitting...



...Started Something!

WHEN Nibco introduced its line of fittings for copper tube plumbing, that started something. A month before these Nibco fittings were put on the market the Copper & Brass Research Association had reported they did not know of a single house, in all the United States, plumbed with copper tubes. Now, there is scarcely a city in which one or more copper jobs has not been installed. Even for waste and vent lines the many advantages of copper are asserting themselves—and it was Nibco, again, that opened this field.

The soundness of Nibco thought and Nibco engineering—and the Nibco sales policy—has been amply demonstrated. When you install "Fittings by Nibco" you are sure of your ground. No tricky "features" have built Nibco popularity; downright quality, painstaking care, solid, time-tested principles—these are the reasons why wise plumbers continue, year after year, to choose "Fittings by Nibco."

Figure your next job in copper—with "Fittings by Nibco." They fit standard tubes from any reliable mill. The Nibco line includes both flared tube and solder type fittings, as well as globe, angle and gate valves for all types of connection, and combination fittings for any possible requirement.

NIBCO

NORTHERN INDIANA BRASS COMPANY

ELKHART, INDIANA

Helping You to Make *Modernizing Sales*

This charming Crane bathroom in Mrs. Stern's home—complete from floor to ceiling—cost but $480.00. This included a new tile floor and gleaming walls with delightful colored mural reaching to the ceiling; also mirror medicine cabinet, modern lighting, towel bars, soap rack and all accessories.
The CORWITH bath and shower, CORWITH lavatory and LEXEL closet are the most modern fixtures produced by Crane—works of art, all of them, and telling their own story of sterling quality.
Some re-creations like this would cost more than Mrs. Stern's, some would cost less, depending on how simply or elaborately you plan your bathroom and the particular Crane fixtures used.
You too can now have
A Charming Crane Bathroom
at a surprisingly low cost
Only yesterday it was just an old fashioned bathroom in the home of Mrs. M. M. Stern, prominent Chicago decorator. Today it glistens like a jewel, transformed by a modern Crane CORWITH bath and shower, CORWITH
tory. And if you have an unsatisfactory heating plant, or yearn for a new kitchen, your contractor can tell you how easily you can have new ones
Telephone Your Licensed Plumbing Contractor. He will give yo

Two New Crane Modernizing Suggestions

. . . that help make a sale! Remodeled kitchens find new convenience in the compact, easily installed SUNNYSIDE Cabinet Sink. Bathrooms find new comfort, convenience and beauty in the CORWITH *cabinet* lavatory. Crane quality always assures satisfaction with your work!

Crane Advertising To Create New Business For Plumbing Trade

"Call in your plumber" advises new consumer campaign

Crane advertising is out to get new business for you from the thousands of homeowners who are planning the modernization of bathrooms, kitchens, heating plants.

Additions, alterations and repairs show a 50% gain over last year, and a 44% increase in new residential building! Of the modernizing money to be spent this year, it is estimated that 11½ millions will go for heating equipment and 15 millions for plumbing. It's in *your* field!

Leading magazines have shown the homeowner how to make his home more attractive, comfortable and convenient. Crane advertising cashes in on this publicity, giving him not only new ideas on modernizing, but also showing him how he can borrow, on easy terms, all the money he needs for his improvement.

You're the man to whom we send the homeowner for details on financing, planning and installing equipment. Get all the facts on the new Crane Finance Plan, operating under F. H. A. approval at government rates. Then arrange to handle every job *complete*, from start to finish! Crane showrooms can be used to clinch the sale. Crane salesmen will co-operate. Materials will be promptly supplied; there's no delay in financing, or collecting your money . . . on a Crane job!

Send for complete, detailed information.

Branches and Sales Offices in One Hundred and Sixty Cities

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO, ILLINOIS • NEW YORK: 23 W. 44TH STREET

OUR INDUSTRY

January, 1935

Homes Without Toilets

A housing survey made in a densely built-up section of northern Philadelphia brings out some interesting figures. There are 98,708 residential structures, representing 107,444 household units. Of these homes, 329 had no running water; 10,798, or 10 per cent had no toilets indoors; 11,998, or 12 per cent use stoves for heating; 12,024 had only cold water while 12,883, or 13 per cent had no bathrooms. Outdoor toilets served 14,213, or 14 per cent.

$500,000 a Day

The National Better Housing Program continues to bring in business in spite of the earlier impression that cold weather in the northern states would slow down this drive. An officer of the Federal Housing Administration at Washington recently answered our question for official information on the average number of loans and their average value. He reported late in November that close to 1,150 loans were being made daily. Their value averaged between $450,000 and $500,000.

For the benefit of those who have not studied this government program, it should be emphasized again that this business is not the direct loaning of government money. Because of the many directions in which federal funds are being used, many business men assume that the FHA program is similar and represents a direct government expense. The opposite is true. These loans which the government reports are made by private financing institutions direct to the borrower. They class as character loans as the writing of additional mortgages and the posting of collateral are not required.

The government's part in this program is two-fold. It insures the lending institution against loss up to 20 per cent on all the loans made by that institution. The government is promoting the program and from its headquarters has been able to rally the enthusiastic support of thousands of groups and individuals in many branches of the building industry.

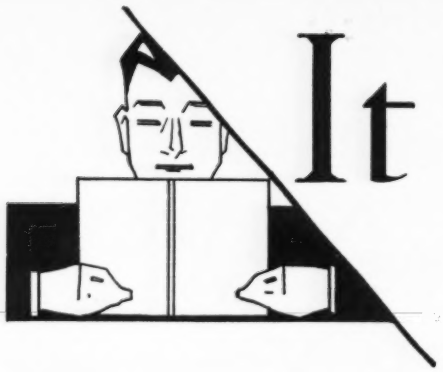
A daily addition of close to half a million dollars in expenditures for the products and services of the building industry is its own witness of the importance of this program. And to our industry, because these borrowers have shown a greater preference for plumbing and heating products and services than for those offered by the other branches, the value of active and continued support of this program is self-evident.

Banks Retard FHA Program

From different localities, DOMESTIC ENGINEERING receives information showing that its readers there are not finding the FHA program productive of more business. In analyzing our reports, it is of course obvious that we hear from a great many more localities in which our readers are benefitting directly from this national modernization drive. The success of our own prize campaign with its evidence that our readers in most sections are making and getting remodeling business is a quite complete answer to the reports from limited sections in which the program is not proving productive.

Local conditions influence these local results. One section, for instance, reports that the bankers are dictating the expenditure of the funds they loan. In such cases, the jobs are given to those who will do them cheapest. The question of a quality product and, of even greater importance, a quality installation, is waived in favor of the lowest price.

Obviously experience in most other localities shows that there is nothing in this program putting a bank in a position to benefit from the loan it makes or to dictate its expenditure. More resolute action by the local members of the building industry, a report to FHA at Washington, or a report to national association headquarters together with active salesmanship in favor of better products and better workmanship will go far to bring such localities in line.



It happened

Caravan of Housing Products to Visit 654 Cities

Cooperating with the Federal Housing Administration, nine manufacturers of products used in the building and operation of homes have joined in a project to send motor caravans to 654 cities and towns, starting about February 15, to "capitalize on the National Housing act at point-of-sale."

In the movement at this date are Johns-Manville Corporation, New York; American Radiator & Standard Sanitary Corporation, New York; General Electric Co., Cleveland; Westinghouse Electric & Mfg. Co., East Pittsburgh; Armstrong Cork Co., Lancaster, Pa.; Crane Co., Chicago; Sherwin - Williams Co., Cleveland; Alexander Smith & Sons Carpet Co., Yonkers, N. Y., and Weyerhaeuser Lumber Co., St. Paul. Other large companies are expected to join.

Chairman of the committee is Carl L. Hamilton of Weyerhaeuser. Vice-chairman in charge of sales is A. A. Uhalt, manager, dealer division of GE's refrigeration department; vice-chairman in charge of promotion, H. M. Shackelford, sales promotion manager of Johns-Manville.

Three caravans of about eighteen coaches each, it is planned, will carry and display products of the participating companies, respectively, in the East, Middle West and the Pacific Coast. The first of these would start in the Southeast and follow the arrival of warm weather northward. Local chambers of commerce and FHA units would arrange for their showings.

To Promote Sanitation in Hotels and Camps

At the recent annual meeting of the Master Plumbers Association of Newark, N. J., it was decided that it be suggested to the New Jersey State Association of Master Plumbers that it should start a movement encouraging members, when traveling, to protect themselves and the public, by asking the managers of hotels and tourist camps, before registering, if their hotels and camps are in a perfectly sanitary condition. It was the concensus of the Newark Association that such a procedure would help to promote the cause of sanitation.

ASHVE to Meet in Buffalo

The American Society of Heating and Ventilating Engineers will hold its 41st annual meeting at the Hotel Statler in Buffalo, N. Y., January 28, 29 and 30, 1935, under the guidance of President C. V. Haynes. Two technical sessions will be held each day and at the conclusion a new council will meet for organization. A program of fine papers has been prepared and there will be ample opportunity for discussion of the subjects presented.

The entertainments include a get-together dinner at 6:30 Monday evening, January 28th, to which all members, ladies and guests are invited. Following the party will witness a radio broadcast from the Terrace room. On Tuesday, at one o'clock the ladies will have a luncheon and card party, and the Past Presidents will attend a special luncheon at the same time. The annual banquet and dance will be held Tuesday evening in the ballroom with L. A. Harding as toastmaster.

Among the technical papers prepared for the meeting are:

"Some Recent Studies on the Ashes in Coal." Prof. T. G. Estep.

"Cooling Requirements of Rooms in an Unconditioned Office Building." F. C. Houghton and Carl Gutberlet.

"The Nature of Ions in Air and Their Possible Physiological Effects." Prof. L. B. Loch.

"Large-Ion and the Small - Ion Content of Air in Occupied Rooms." G. R. Wait and O. W. Torreson.

"The Design of Solar Heaters." Harold L. Alt.

"The Heat Requirements of Buildings." J. H. Walker and G. H. Tuttle.

"Tests of Three Heating Systems in an Industrial Type of Building." G. L. Larson, D. W. Nelson and John James.

"Study of Summer Cooling in the Research Residence for the Summer of 1934." A. P. Kratz, S. Konzo, M. K. Fahnestock and E. L. Broderick.

Housing Advisory Council Is Appointed

A Housing Advisory Council of the Federal Housing Administration has been appointed by Administrator James A. Moffett. This council consists of twenty-five men who are authorities in the seven broad functions of FHA: Architecture, construction, materials, labor, city planning, housing and finance. Among the members of the council are: Rolland J. Hamilton, president of the American Radiator Company, New York City; Lewis H. Brown, president of the Johns-Manville Corporation, New York City; Robert J. Barrett of Washington, D. C., executive director for the Plumbing Code.

Utility Policies Cripple Appliance Industry

Current assets of manufacturers of gas appliances shrank from $82,000,000 in 1929 to $47,000,000 in February, 1934, a loss of $35,000,000 or 43 per cent. This analysis of the serious losses suffered by such manufacturers is given by George E. Frazer, counsel of the Gas Appliances Institute, Chicago.

Mr. Frazer pointed out this is the first time that such figures have been available. Acting as confidential agent for the gas appliances indus-

this month!

try, he had received balance sheet reports from 400 manufacturers.

Mr. Frazer points out that 50 per cent of the gas appliances are distributed through gas companies. Most appliance manufacturers have suffered losses because of the insistence by many gas companies on low prices. Actual manufacture of appliances was started by other gas companies.

He pointed out that when the plumbing and heating dealer and other independents found the market riddled by gas company practices, these dealers simply went ahead with their normal and regular business. But Mr. Frazer recalled to the gas company executives that they require gas appliances to stay in business whereas independent dealers do not. For that reason, he urged the gas companies to consider the effect of the continuance of those policies which had destroyed 43 per cent of the current assets of the gas appliance manufacturers in five years.

Spends $35,000,000 to Modernize Homes

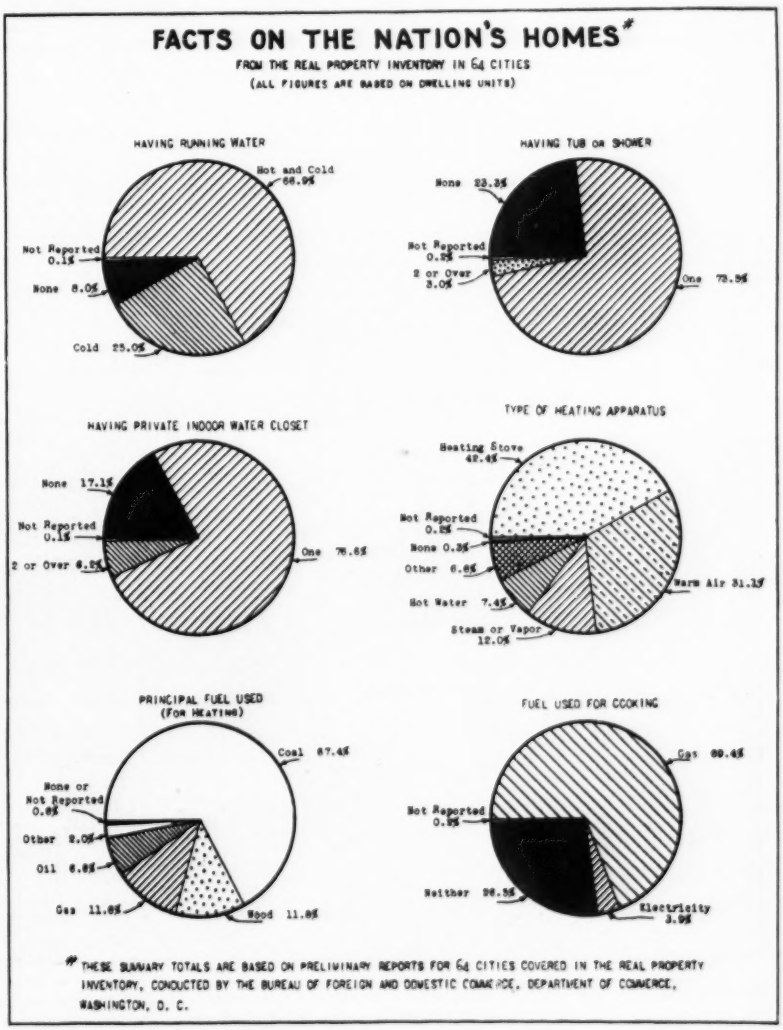
The repairing, remodeling and modernization of homes, on which the Home Owner's Loan Corporation has refinanced mortgages, required an expenditure of $35,000,000 in cash. The average reconditioning job financed through this government agency amounted to about $250. The Corporation recently suspended activities on new applications, but estimated that $27,500,000 will be needed for reconditioning work on homes for which applications are still being considered. It is estimated that the Home Owner's Loan Corporation, with mortgage refinancing loans on 663,863 individual urban homes, requiring cash and bond advances of $2,021,736,619, now has financial interest in 6⅔ per cent of all the owner-occupied urban homes in the United States, or one out of every fifteen homes.

Charts Show Plumbing and Heating Needs of U. S. Homes

A striking record of housing conditions in America is shown in the accompanying chart. The illustrations show graphically the job ahead of the plumbing and heating industry in bringing a substantial proportion of American homes up to a decent living level.

The chart was released on December 29, 1934, by the department of commerce in a special report. The data is based upon the real property inventory carried on by the department of commerce.

In earlier issues, DOMESTIC ENGINEERING has shown some of the striking facts revealed in this property survey, but the full force of conditions found is now strikingly disclosed in this chart.


FACTS ON THE NATION'S HOMES*
FROM THE REAL PROPERTY INVENTORY IN 64 CITIES
(ALL FIGURES ARE BASED ON DWELLING UNITS)
HAVING RUNNING WATER
Hot and Cold 66.9%
Not Reported 0.1%
None 8.0%
Cold 25.0%
HAVING TUB OR SHOWER
None 23.3%
Not Reported 0.9%
2 or Over 3.0%
One 72.8%
HAVING PRIVATE INDOOR WATER CLOSET
None 17.1%
Not Reported 0.1%
2 or Over 6.0%
One 76.8%
TYPE OF HEATING APPARATUS
Heating Stove 42.4%
Not Reported 0.2%
None 0.3%
Other 6.0%
Hot Water 7.4%
Steam or Vapor 12.0%
Warm Air 31.1%
PRINCIPAL FUEL USED (FOR HEATING)
Coal 67.4%
None or Not Reported 0.6%
Other 2.0%
Oil 6.8%
Gas 11.8%
Wood 11.8%
FUEL USED FOR COOKING
Gas 89.4%
Not Reported 0.5%
Neither 9.8%
Electricity 3.9%
* THESE SUMMARY TOTALS ARE BASED ON PRELIMINARY REPORTS FOR 64 CITIES COVERED IN THE REAL PROPERTY INVENTORY, CONDUCTED BY THE BUREAU OF FOREIGN AND DOMESTIC COMMERCE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C.

Plumbing and Heating Dealers

WHEN the All-American team is selected from the members of the building industry who are doing an outstanding merchandising job, you will find the plumbing and heating dealers holding most of the key offensive positions. DOMESTIC ENGINEERING wants to congratulate its readers on the fact that those readers are doing more than any other group to make the FHA modernization program successful.

Every member of this industry, in whatever branch, should feel the same pride in the prompt and vigorous support these dealers in plumbing and heating products are giving to the first national modernizing drive. When you "look at the record" you find the positive answer to the excuse of the man who needs an alibi that the plumbing and heating contractor is not a salesman. This record shows that our industry today has on the selling line a group of dealers competent and willing to use their own money and time to promote really constructive sales programs.

What is this record?

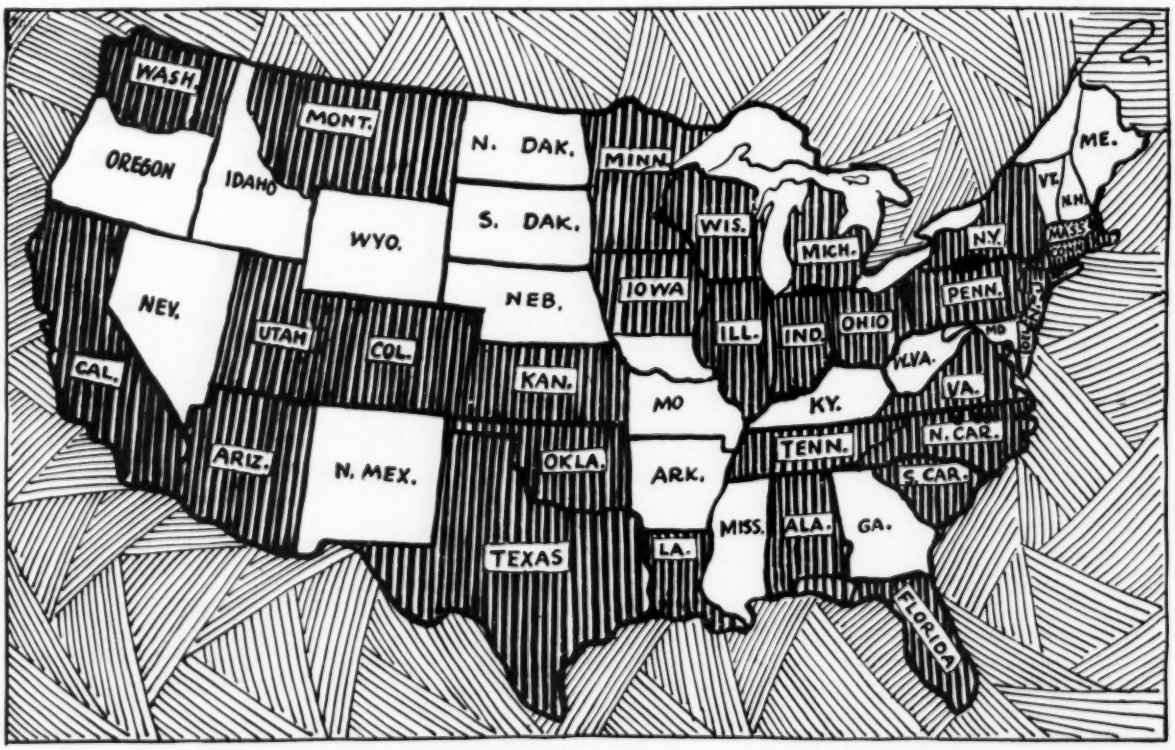
DOMESTIC ENGINEERING has secured a representative file of building pages from newspapers all over the United States. The map below shows just how representative this survey is since all of the shaded states supplied newspaper files for our analysis. On those building pages appear the advertisements of members of the building industry, as well as outside groups such as banks, utilities, department stores and insurance companies. These advertisements are one means by which merchants have tried to interest the public in making home repairs under the FHA program.

A count was made in the office of DOMESTIC ENGINEERING of all of the advertisements appearing in this group of newspaper building pages. And the count showed that dealers in plumbing and heating products easily outranked all other classes of advertisers in the number of advertisements. In such counting, each advertisement had to be a complete unit. In other words when a group of dealers signed a collective advertisement that was counted as just one ad.

This survey shows that 18.72 per cent of the advertisements appearing on these building pages are paid for by plumbing and heating dealers. In other words, out of every 1,000 advertisements, 187 tell a sales message for plumbing and heating.

The same analysis shows that close to one-third of the advertisements paid for by members of the building industry are being paid for by the plumbing and heating dealers.

This record was checked against the different divisions of the country and shows approximately the same situation all over the United States. In the East, for instance,



Building pages of newspapers published in the shaded states were checked to find out whether plumbing and heating dealers were advertising in support of the Federal Housing Administration modernization campaign

Lead in FHA Ads to Home Owners

the proportion of plumbing and heating advertisements was 19.44 per cent while on the Pacific Coast it was 18.42 per cent. The South had a record of 18.81 per cent and the Middle-Western states 16 per cent.

With this record of one-fifth of all advertisements and close to one-third of the building trade advertisements, credited to the plumbing and heating dealer, DOMESTIC ENGINEERING wants every reader and every member of the industry to join in recognizing that these dealers deserve the key positions on the All-American FHA Team.

As the above selections show, the dealer in plumbing and heating products is leading the entire building industry in advertising support of the national modernization campaign

Bigger Sales in 1935 for Our Industry

H. O. NELSON, president, Nelson Co., Detroit:

"I believe that our industry will continue on the up swing during 1935. People want good living conditions in their homes, plumbing and heating is very essential to both comfort and health and as general conditions improve the demand for our products will show a very decided increase probably greater than in many other commodities. With the Government stressing remodeling and new building as a prime factor in business recovery and the F. H. A. program now well under way, our outlook is probably better than it has been since 1929.

"Surplus and distress stocks have been largely liquidated in our industry. For the first time in several years wholesalers' stocks represent a tangible value, material costs are stable and will probably increase as business increases. Values are gradually but surely creeping back into real estate. Commodities are becoming more valuable, the dollar less valuable, exactly what is needed to help the great masses."

E. N. McDONNELL, McDonnell & Miller, Chicago:

"I am happy to be able to tell you that business during 1934 showed a very healthy gain for us over 1933, and I feel confident that 1935 will show a substantial gain over 1934. At this time, I want to tell you that we have been very much pleased with the results obtained this year through the use of a twelve-months insert campaign in DOMESTIC ENGINEERING."

HERMAN W. STEINKRAUS, vice-president, Bridgeport Brass Co., Bridgeport, Conn.:

"We have had an increased improvement in our business beginning with October and extending into this month, which has not been as strong as our Spring business, but which has been at a profitable and gratifying rate. Our recent contacts with some of the largest manufacturers of plumbing material indicate they expect approximately 25 per cent improvement in their spring business over 1934. Much of this improvement will be based on the modernization of old buildings and the improvement of homes. For the past few years this work has been largely neglected by home owners, but with the improved business conditions and the facilities for getting money through the F. H. A. modernization program, they are beginning to make the needed improvements."

HENRY T. COLE, president, United States Radiator Corporation, Detroit:

"I am glad to advise that we have enjoyed better business in the past several months than during 1933, by approximately 30 per cent. We are also looking for improvement in the building industry during 1935."

C. E. PULLUM, general manager, heater division, Bell & Gossett Co., Chicago:

"Our business has shown a marked improvement during the past six months. We lay this to two reasons —*first,* a general revival of spending power and *second,* to the fact that during the past year we have been making improvements in and additions to our line until now it is a complete source of supply for our particular field. We are quite confident that our business will develop even more rapidly in 1935 than it has in these last few months and we also believe this will apply to the heating industry in general.

JOHN B. BERRYMAN, president, Crane Co., Chicago:

"Business was better in 1934 than 1933; we anticipate a further improvement in 1935. It seems to be the general opinion that a revival of the capital and durable goods industries is necessary before we can say that we are on solid ground again, and the administration, through the FHA and other agencies, is giving aid and encouragement to this revival."

CARTER SALES, Murray W. Sales Co., Detroit, Mich.:

"We have had better business in 1934 than we have had in the past several years and I think the outlook for next year is most encouraging. I believe, however, that competition during 1935 will be very keen and feel that everyone will have to be on his toes to get his share. Also that the plumbers, jobbers and manufacturers will have to work very closely together and help each other as much as possible."

WILLIAM A. BRECHT, president, Hajoca Corporation, Philadelphia:

"During the year 1934, business has been steadily improving. In my opinion, there was an increase in the plumbing and heating industry of about 40 per cent in 1934, over 1933. Our industry, however, can not make great strides until there is a definite residential building program throughout the country, but in the meantime, much can be done to cooperate with manufacturers and plumbing and heating contractors, in an aggressive selling campaign."

HOWARD COONLEY, president, Walworth Company, Inc., New York City:

"The fourth quarter of 1934 has shown an improvement over the second and third quarters but has not equaled the first quarter. It is my belief that acceleration of business can best be obtained by effective merchandising of higher grade products. We have found that our business has been relatively better in non-competitive than competitive lines."

OTTO G. HITCHCOCK, secretary and general manager, Hays Mfg. Co., Erie, Pa.:

"We can report that general business has been better during the past few months, with rather a sustained production level, and makes us rather confident that better business can be looked for by Spring, when the demand for building repairs and remodeling will no doubt get under way."

Regular Distribution Methods Gain Strength in 1934

More Manufacturers Favor Established Outlets

DISTRIBUTION is the key to better business. The problem of American business a few years ago was that of getting more production and getting it more cheaply. But now the emphasis is being placed on distribution, as a means to greater sales through the most economical way to reach the public.

The established method of distributing plumbing and heating products has been under fire for several years but has survived and grown stronger under attack. As far as our industry is concerned, 1934 saw an increased acknowledgment by manufacturers, wholesalers and retailers, that the plan of distribution which most of them recognize is capable of producing the best results.

It was inevitable that the established order of distribution should be energetically assailed during a period of general business disturbance. Everything has had to prove its right to existence. That is why we heard more about department stores with their "traffic" and their desire to take on heavy goods. But after several years of attack, of general disturbance during which nearly any change was likely to be regarded as an improvement just because the older method seemed nonproductive, the established distribution system is recognized and approved on business grounds by more and more manufacturers.

To focus the attention of the industry on this question of distribution, DOMESTIC ENGINEERING *asked a few of the leading manufacturers and wholesalers to comment on distribution conditions in our industry as we rounded into a new and promising year. Their replies follow and are important because of the preponderance of evidence they give to the soundness of the distributing methods under which the overwhelming volume of plumbing and heating products have always reached the public.*

Here are what a few manufacturers say:

JOHN B. BERRYMAN, president, Crane Co., Chicago:

"On the question of distribution, we have adhered for so many years to the manufacturer-wholesaler-retailer system, in the sale of plumbing goods, that we know nothing of any other method. However, it is quite evident from the number of dealers selling directly to the consumer, that all manufacturers do not agree with us."

HENRY M. REED, president, Standard Sanitary Mfg. Co., Pittsburgh, Pa.:

"It is too early to report on the final results of our trade paper and newspaper advertising. The results are most gratifying in regaining the sanitary markets for the master plumbers."

HOWARD COONLEY, president, Walworth Co., New York:

"The manufacturer-wholesaler-retailer system is undoubtedly gaining in force. The trend in the lines which we manufacture is very definitely in this direction."

HERMAN W. STEINKRAUS, vice president, Bridgeport Brass, Co., Bridgeport, Conn.:

"In our opinion, there is a definite strengthening of the manufacturer-wholesaler-retailer system of distribution. The codes have brought this issue more definitely before the various manufacturers than ever before and even though some smaller manufacturers may find it difficult to establish their distribution as quickly as possible through the established system of distribution, we believe that they are finding it increasingly desirable to do so."

E. N. McDONNELL, McDonnell & Miller, Chicago:

"In my judgment, the established system of distribution, which is manufacturers to wholesalers to contractors, is absolutely sound for our industry, and I believe that there will be a very definite trend toward strengthening this system of distribution in the very near future."

HENRY T. COLE, president, United States Radiator Corp., Detroit:

"Our present plan of distribution through wholesaler and dealer seems to be satisfactory, and it would appear to me that our present sales policy in that respect is fully warranted."

F. H. TWEED, general manager, Dole Valve Co., Chicago:

"We believe we do see a definite strengthening of the manufacturer-wholesaler-retailer system of distribution. There are always reasons behind every movement, and we have no doubt in our mind that eventually the best way will survive, although, of course, in the interim many radical ideas may have an upsetting influence. On the other hand perhaps a little 'tickling up' makes us all a little more alert and, like good competition, is the life of trade."

C. E. PULLUM, general manager, heater division, Bell & Gossett Co., Chicago:

"We are definitely committed to the manufacturer-wholesaler-retailer system of distribution in spite of some apparent disadvantages. Any manufacturer of heating systems or equipment has a very serious problem on his hands in the matter of a proper understanding of his product, correct installation and service. While a direct selling method overcomes this difficulty. it is also a method which is a bit too expensive for the average manufacturer. We are planning an educational campaign on the uses and operation of our products in order to make our wholesaler to retailer outlets a strong and effective selling organization."

OTTO G. HITCHCOCK, general manager, Hays Mfg. Co., Erie, Pa.:

"It has always been our policy to market our materials through the wholesaler and he in turn to the retailer, and we are convinced this is the only logical way, and the real live and let live policy, economically sound, with the best service assured the consumer."

O. A. REITER, sales promotion manager, Hotstream Heater Co., Cleveland:

"In so far as distribution of plumbing and heating products is concerned, it is our belief that the established system will survive because it has a foundation of many years standing. We feel, however, that this distribution method must be fortified with the desire and attempts of the wholesaler to function as a 'specialty' or merchandising unit, rather than merely a warehouse. In other words, if the wholesalers will follow the lead of the utilities in their methods of dealer co-operation from a sales and advertising standpoint, then their position will be strengthened to such an exent that it would take a tremendous force to dislodge them."

MICHAEL A. MARTIN, vice president, Uniflow Mfg. Co., Erie, Pa.:

"Our company has always been a firm believer in the integrity and ability of existing dealer and jobber outlets for the merchandising of our equipment and has always been 100 per cent with them and for them. Of course, there are weak jobbers and dealers today in perhaps greater numbers than there were during the period from 1925 to 1929 and 1930, but it is our firm belief that the plumbing supply jobber and dealer can be promoted by the manufacturer into the merchandising of specialties such as we manufacture, and with the tools and sales assistance that we are prepared to furnish them, we feel that they will do a good job for us."

W. A. PHILLIS, vice president, Beaver Pipe Tools, Inc., Warren, Ohio:

"For thirty-five years we have been distributing through supply houses—and in spite of the trials and tribulations of the depression we made no 'experiment' in the matter of distributing our products to the user—nor do we know how the present set-up could be improved—except by greater cooperation between manufacturer and distributor."

A boiler manufacturer:

"There are obvious advantages and logical reasons for distribution from manufacturer to wholesaler to retailer and if each does his part and assumes his share of the responsibility it is unquestionably a sound method of distribution. If the manufacturer sells directly to a retailer at a price with which the wholesaler can not compete, then the wholesaler has just cause for complaint. On the other hand, if the wholesaler sells the manufacturer's product to a retailer at a price lower than the published price of the manufacturer to the retailer, then a bad situation is created. At present, there are too many wholesalers who are content with a very small brokerage fee on boilers and radiators picked up from the manufacturers' warehouse, resulting in price demoralization. If NRA permitted establishment of a resale price in our industry, the price situation would no doubt be better. If the retailer is a merchant and intelligently goes after business he certainly occupies an important position, particularly in view of the fact that he is not selling a package item such as a refrigerator, but something which must be installed in connection with other materials such as pipe and fittings and the satisfaction obtained by the home owner or the builder from the manufacturer's equipment depends to a very great extent upon the manner in which the installation is made.

"Adverse criticism of the plan of distributing from manufacturer to wholesaler to retailer is perhaps due more to the operation of the plan than to the plan itself. We imagine that if an economist were asked to state which of several plans of distribution is best, one of his first questions would be "best for whom." The manufacturer naturally thinks of himself as do also the wholesaler and the retailer and all three will agree that a workable plan must be mutually satisfactory. The economist probably would say "what about the consumer," and would point out that the buying public must always be considered. The wholesaler could answer that he maintains stocks making materials readily available, but comparatively few stock boilers and radiators at present. The retailer could answer that he maintains shop, tools and mechanical force and has a specialized knowledge of the engineering and installation requirements.

"My personal opinion is that the FHA plan which eliminated the dealer's endorsement places the dealer one step nearer to being merely an installer and that it tends to clear the way for eventual direct selling by the manufacturer and/or wholesaler. If there is something wrong with the heating installation, a complaint is usually made to the manufacturer of the boiler and if the heating contractor fails to take care of the complaint, the manufacturer must in order to protect his good name. Since the manufacturer must assume full responsibility for the credit feature and too often for the installation feature, it is only natural for him to give some thought to the idea of dealing directly with the public. This, of course, only applies to modernization and small house work and not to large buildings.

"No market belongs to any individual group by inheritance or divine right; they must earn their right to it. A company or an individual who serves the public the way it wants to be served can not be legislated or boycotted out of business. On the other hand, companies selling directly to the consumer should not be in a position to wreck the market; they should not be per-

mitted to become parasites, that is, taking all and contributing nothing. Should it prove possible and legal to set up standards which must be met to enable a buyer to classify as a wholesaler, direct-to-you or dealer, many of the present evils would be eliminated. In spite of some of the unsatisfactory conditions which exist in our industry, progress is being made and the outlook for the future is far from being gloomy."

E. R. DOWNS, advertising manager, Spencer Heater Co., Williamsport, Pa.:

"Our sales set-up has been entirely on the manufacturer-wholesaler-heating contractor-retailer system of distribution and the general satisfactory operation of this system has entirely justified our opinion of its soundness."

J. F. G. MILLER, vice president, B. F. Sturtevant Co., Boston:

"Regarding distribution, we are of the opinion that such of our products as are susceptible to distribution through wholesale channels, can be handled in that way in greater volume than by direct sales to the user. Apparatus requiring any considerable amount of engineering knowledge in its application can not best be handled through merchandised channels. The greatest source of trouble in merchandising the equipment which we do sell in that way is due to the tendency on the part of the wholesaler to go direct to the user and make his sale, rather than go to the retailer in accordance with the schedule mapped out by the manufacturer. With the retailer eliminated, just so much of the retail outlets will be made inoperative, and business correspondingly curtailed."

And here's the opinion of a few wholesalers:

W. A. BRECHT, president, Hajoca Corporation, Philadelphia:

"We feel that there is an awakening in the minds of manufacturers, wholesalers and contractors, to the need of cooperation and coordination, in a program designed to tell the American public that the policy of manufacturer to wholesaler to contractor to consumer, is to the best interest of the American public, and that the other forms of distribution do not render the public an equal service.

"We must not overlook the fact that there has been set up another form of distribution, which has sold itself to the American public, and is not to be legislated out of business at one fell swoop. There is a large capital investment in back of this other form of distribution; they have been more aggressively sales minded, and have had an advantage, particularly over these years during which there has been no building program.

"Collectively, the traditional method of distribution must tell the American public who they are, what they have to offer, and what the value of their merchandise is. Further, they must be committed to the program of educating the public to the need for legal installations.

"We are sure that the time is at hand to move forward, and if the industry as a whole will combine forces, there is no doubt that we can regain much of the ground that has been lost, due to lack of action.

"We particularly commend President John Calnan on his progressive and forward-looking statements, which have been made through the press of our industry.

"It is our hope that the year 1935 will be a period of real reconstruction in our industry."

H. O. NELSON, president, Nelson Co., Detroit:

"The degree of prosperity will depend largely upon our ability to cooperate within the industry. This, I feel, is an even more important factor than the increase in volume. Apparently section 7A, and minimum wages and maximum hours provisions of NRA are to continue in force. They are fundamentally sound and in operation should help to force a more equal distribution of wealth. Fair trade practices in industry are written in all industrial codes and are rapidly taking the place of sharp practices and chiseling. More time is being spent by executives in keeping their industrial associations active, they are facing their problems collectively and confidence is increasing.

"I am convinced that we will see much greater cooperation between the two distributing branches of our industry, namely, the plumbing and heating contractor and the wholesaler as time goes on. Advertising such as is being done at the present time by the Standard Sanitary Mfg. Co. will be very helpful in prompting better ethics between all branches in the industry. I look for a general increase in promotional advertising in newspapers, magazines and on the radio. Our Plumbing and Heating Industries Bureau becomes of outstanding importance and usefulness in our future development.

"If President Calnan's suggestion for national and local conference committees between manufacturer, wholesaler, and contractor succeeds, many divisional meetings will follow between the wholesalers and their contractor customers. If we will all devote our time and thought now to the best interest of the so-called manufacturer to wholesaler to plumbing and heating contractor system of distribution and forget all others, I am sure that we will soon realize the substantial structure that this industry has been built around and we will in the future devote more time to sanitary codes, satisfactory service, and the true fundamentals of our industry. Earnest, sincere cooperation will find the answer to all our problems."

CARTER SALES, vice president Murray W. Sales & Co., Detroit:

"There is no question but that the manufacturer, wholesaler, retailer system of distribution is strengthening every day and I believe without a doubt it is the only good system of distribution of plumbing and heating materials. The several manufacturers who have experimented with other means of distribution have seen their mistakes and many of them are now returning to the old system. It must be a good system or it would not have survived for so many years."

An eastern wholesaler:

"So far as distribution is concerned, we believe that most manufacturers who stand for a constructive effort to cleanse this industry are definitely convinced of the necessity for adopting a proper policy and adhering to it. I believe that today they are more than ever willing

to accept the fact that the wholesaler provides distribution for the manufacturer and is entitled to a proper compensation for the function he performs, and that the retailer does not perform this function and is not entitled to purchase at the wholesalers' cost leved. Manufacturers whose policy, or lack of it, has led them to sell wholesalers and retailers, including retail hardware stores, etc., are finding an increasing resentment against such methods. In addition to this, it might be said that more manufacturers have come to the realization that in order to successfully market their goods they must sell through selected distributors, eliminating overlapping competition, and maintain a proper price policy in order that the sale of their product might continue to be an attractive line for the wholesaler to handle. It is being proven to many manufacturers that when sales are made by them indiscriminately to everyone who will buy their goods, their line is attractive to no one."

J. C. McEWEN, general manager, N. O. Nelson Mfg. Co., St. Louis:

"There seems to be a much more friendly feeling on the part of the manufacturers toward the wholesalers and this is a very good sign which should gradually strengthen the distribution problem and should result in those manufacturers of plumbing and heating products enjoying a much greater volume of business from the wholesaler."

L. U. NOLAND, president, Noland Co., Newport News, Va.:

"A very fine spirit of cooperation is enjoyed between the wholesaler and the plumbing and heating contractor, much better than ever before. Due to the reduction in prices of enamelware and pottery, the legitimate contractor and legitimate wholesaler are securing more of the consumer dollar on some fixtures and replacements than what they received when there was a wide difference in prices between the mail order houses and the direct-to-you people selling to the consumer whereas the wholesaler in this section confines his sales to the plumbing and heating contractor.

"I am satisfied in my own mind, due to the adoption of the codes now in effect in our industry, that not only manufacturers but wholesalers and a great many direct-to-you people believe the proper distribution of sanitary plumbing and heating products is through the manufacturer to wholesaler to contractor method."

WILLIAM HAYES, treasurer, Manchester Supply Co., Manchester, N. H.:

"We find that the higher grade manufacturers have strengthened the manufacturer-wholesaler-retailer system of distribution; however, the smaller manufacturers we feel are weakening on the subject, rather than strengthening. We also feel that if the system of manufacturer-wholesaler and retailer distribution is not strengthened in the very near future, the higher grade manufacturers will not be able to control enough of the business to warrant them staying with that system.

"On this subject, it is my personal opinion that the manufacturer should name the price not only to the wholesaler, but the wholesaler's price to the dealer, and the dealer's price to the consumer. In every case where, within our knowledge, this plan has been used, the situation is far better than on any of other lines.

"This subject is a large one and I have too many definite views on the subject to take up in one short letter. I do feel, however, that if the plumber can not be protected in his resale price to the consumer on a margin that will enable him to make a favorable return on his effort and capital invested, he cannot continue to exist on the present plan of distribution and surely if the plumber can not continue to exist, the jobber most surely can not, and that goes another step, that the manufacturers supplying those jobbers protecting the plumber can not exist unless they change their plan of distribution."

W. E. PRICE, president, Knapp Supply Co., Muncie, Ind.:

"Regarding distribution, the writer is of the very definite opinion that at no time in the past ten years have we seen such evident desire on the part of the manufacturer, the wholesaler and the retailer to respect the functions of each other.

"There is no doubt in the writer's mind but what this method of distribution is economically sound. We believe that any other method would be too expensive to be permanent. Very few manufacturers have ever made a success when they have taken on the additional selling and financing expense necessary when they ignore the wholesaler in their selling plan. Very few if any distributors have ever found it satisfactory to adopt a plan of direct selling.

"We are very much encouraged to believe that the method of distribution in which we all believe is more firmly established today than at any time during the past few years.

"We are also satisfied that this plan of selling is the best one to fight mail order and d-t-u distribution. We wish to compliment you upon the interest that you have taken in the welfare of the three divisions of the plumbing and heating industry."

FRED N. KRETSCHMER, Kretschmer-Tredway Co., Dubuque, Iowa:

"We find that with the fair manufacturers 'and they are in the majority' the trend is now pointing toward the manufacturer, wholesaler, retailer system of distribution and those manufacturers who have not as yet declared themselves in accord with this system are finding that the wholesaler and retailer are now paying more attention to manufacturers policies than they are to price concessions."

LOUIS J. MERKEL, president, Merkel Brothers Co., Cincinnati, Ohio:

"We believe that manufacturers of plumbing and heating products and many distributors as well, are definitely convinced that the manufacturer-wholesaler-retailer system is the better for everyone concerned—that this old established system will prevail and that it has been greatly strengthened through the vigorous efforts made by various organizations of different branches in the industry."

Enter Now for Grand Prize

D. E. Prize Campaign Closes January 15 —Six Win January Award

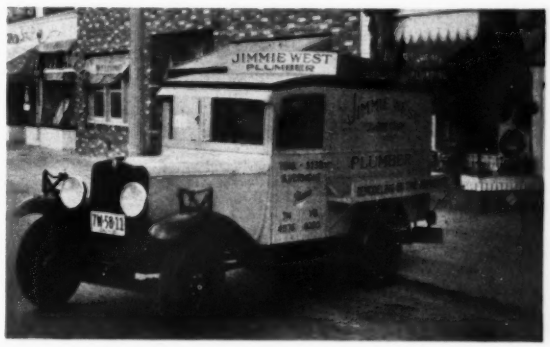
ENTRIES received by Jan. 15 will be eligible for the $100 Grand Prize offered by DOMESTIC ENGINEERING. This prize goes to the one selected by the judges as having done the outstanding job in taking advantage of the opportunity offered by the Federal Housing Administration campaign.

Since the announcement in our October issue, we have been awarding monthly prizes of the big Domestic Engineering Plumbing and Heating Catalog and of cash. Awards have gone for the best letters, best advertisements or best examples of salesmanship—all selected for the direct help these successful ideas gave to other readers.

Now entries received by Jan. 15 will be judged first to see who wins the $100 Grand Prize. Others, up to 90, will be given their choice of any one of six outstanding plumbing and heating books. Thus in February we will announce 91 prize winners.

For January, the six winners were successful because of their vigorous and prompt reaction to the FHA campaign, a reaction which led to merchandising efforts and to orders. The judges, John J. Calnan, president of the National Association of Master Plumbers; Charles E. Gawne, secretary of the N.A.M.P. and Norman J. Radder, secretary of the Plumbing and Heating Industries Bureau, selected the six following January winners:

Jimmie West, Los Angeles, Calif., for his use of every available advertising medium to increase sales through the FHA. Among his sales methods were a



The sign reads "the one-trip plumber"

WE ARE CO-OPERATING
BETTER HOUSING PROGRAM

Modernize Your

PLUMBING

On Our Simple

***Low Cost* Payment Plan**

You can modernize your plumbing now with low monthly payments—no red tape—no down payments and the lowest financing rates ever made available. Our finance company is authorized by the Federal Housing Administration.

Call or See Us

We will make complete arrangements.

Harry W. Shiver

Plumbing and Electrical Appliances

Phone 259

This Arkansas reader advertises consistently and effectively

And in New Jersey, FHA advertisements paid

UNCLE SAM

Wants You To Improve Your Home

From 1 to 3 Years To Pay

SEE US FOR A NEW

KITCHEN
BATH ROOM
ELECTRIC PUMP
SEPTIC TANK
HOT WATER HEAT
HOT AIR HEAT
OIL BURNER

Ask us how to cut your coal bill in half
No Charge for Estimating

TRENTON PLUMBING

Albert E. Schoeller, Gen. Mgr.
Phone 5393
330 S. BROAD STREET, TRENTON, N. J.
26-13t.

• • • WHAT TO DO

Enter by Jan. 15.

Send us a prompt report of a sale you made, a successful sales idea you used, a photograph of your show window, a copy of your advertising, a copy of your sales letter or a good sales suggestion.

This will put you in line for one of the 90 Book Prizes and for the GRAND PRIZE of $100.

WHAT YOU MAY WIN

A choice of one of these six Books, all among our best sellers:

"Air Conditioning Simplified,"
"101 Plumbing and Heating Tables,"
"Alt's House Heating Plans," by Harold L. Alt,
"Oil Burner Heating,"
"Joint Wiping and Lead Work," by William Hutton,
"Table of Estimated Radiation," by Harry B. Perrigo.
AND
The Grand Prize of $100.

WHAT WE OFFER

90 Books .....$ 90.00
Grand Prize $100.00

Jan. 15 is the deadline.

sign on top of his store, circulars, salesmen, etc. He found the most effective of these to be the door-to-door circularizing plan.

Albert S. Windham, Mgr., Thos. J. Holmes, Natchez, Miss., for his strenuous efforts to promote the FHA in his city, and for his tieing in with other building contractors to promote the FHA in a city-wide newspaper advertising campaign.

Lewis J. Eron, Eron Plumbing & Htg. Co., Wisconsin Rapids, Wisc., for his use of the FHA campaign to help him create business. This netted him $5,162 in business directly traceable to the FHA.

FLASH!

Plumbing Fixtures Decline 20%

Let us install a new, modern and up-to-date bathroom or modernize your kitchen with a new beautiful up-to-date sink.

WHILE PRICES ARE CHEAP AND UNCLE SAM WILL LOAN YOU THE MONEY

NO DOWN PAYMENT

THREE YEARS TO PAY

THOS. J. HOLMES

Plumbing, Heating, Roofing, Sheetmetal, Gas Fitting.

'PHONE.....258

117-119 S. Commerce St.

Co-operating with the FHA

A Flash from Mississippi

George A. Mozeik, Mozeik Hdw. Co., Rankin, Pa., for his active personal solicitation of new prospects. He works as late as midnight occasionally to close deals. He says "Work will not come to the office, you must get out and use salesmanship."

Albert E. Schoeller, Trenton Plumbing, Trenton, N. J., for his earnestness in helping the FHA campaign through the use of effective sales arguments intended not only to benefit his firm personally, but also to help the entire plumbing and heating industry.

Harry W. Shiver, Hope, Ark., for his consistent and effective use of varied newspaper advertisements to put across the FHA idea in his locality.

Called to Fix a Leak He Sold a Complete Bath

Reproduced below, is a copy of a letter from William Roebel, Jr., Fort Wayne, Ind. This letter helped to win for him a big Domestic Engineering Plumbing & Heating Catalog in addition to a check for $5.00.

Let Mr. Roebel tell you in his own words just how he turned a $20 *job of fixing a leak into a* $375 *remodeling project. His letter to us follows:*

To the Editor:

I am sending this letter as an entry in your sales contest.

A few weeks ago I was called in to repair a leak under a bathroom in a residence in this city. I found the bend under the closet eaten out. Accordingly, I told the owner that the closet and the floor would have to be removed in order to fix the leak.

As the present fixture was an old and ugly one, I figured this was the ideal time to broach the subject of a new closet to be put in while the floor was torn up and I had all my tools right there. Luckily for me, his wife was standing nearby when I mentioned it to him. She remarked that the old toilet was hard to keep clean and her daughter, now in her 'teens, was ashamed to bring her girl friends home on account of this old dilapidated bathroom. Thus I had two good sales angles to work on.

I own an old building in which I have installed a display bathroom to show prospects just how a remodeling job will look. As the first step, I suggested that they come and see how nice their bathroom could be made to appear. He tried to back out, protesting that he didn't

This dealer has this working display in one of his houses

have the money, but I told him I could get him a loan and that he should have new equipment installed now while things were cheap.

Finally, they consented to come with me. Here in my display room they saw the actual operation of the double shower as well as that of all the other fixtures (see accompanying illustration). Mr. ———, my customer, was impressed by seeing the equipment in operation, and said that he would not get nearly as clear an idea if he went to a show room. His wife was sold at once on the new toilet and asked about the cost of a room like mine. She surely looked surprised when I told her how low it was. With this encouragement, I started to press my case little by little. It wasn't long until I found out that he had the cash, so I went back to his home, and forgetting about the leak, I showed him and his wife the picture of their bathroom as it would look when remodeled. After I finished, they were sold on a new closet and a recessed tub with shower complete.

He wanted to talk over the finances that evening with his wife, so knowing that if he talked it over in the presence of his daughter, who is in high school, he would not have a chance to resist. I told him I would call next morning. However, about 7 o'clock that evening he called and asked the price of complete new equipment, omitting the lavatory. When he heard the figures I quoted, he told me to install the new toilet and the tub with showers. I didn't push him on the lavatory as I knew his wife would want one after she saw the work partially completed.

Therefore, I waited until the job was well under way before I started talking about the lavatory. While his wife was watching me work, I remarked that the lavatory could be installed cheaper while I had the tools and

Here Are The Rules • • •

1. **Write a letter telling how you are taking advantage of the Federal Housing Act to sell plumbing or heating equipment.**
2. **Skill in writing will not be considered.**
3. **The enterprise and ingenuity of the dealer in using the F.H.A. to sell plumbing and heating material will be the determining factor.**
4. **The method, preferably, should have resulted in an order although this is not necessary.**
5. **Any contractor or dealer may enter and is eligible for the grand prize. In case of a tie, duplicate prizes will be awarded.**
6. **The judges will be John J. Calnan, President of N.A.M.P., Charles Gawne, Secretary of N.A.M.P. and Norman J. Radder, Secretary of Plumbing and Heating Industries Bureau. The decision of the judges will be final.**
7. **All letters received anytime before noon, January 15th, 1935, the final closing date, including monthly prize letters, will be eligible for the grand prize. Contractors may send in more than one entry if desired.**
8. **In order to report promptly to its readers the best and most practical sales ideas, DOMESTIC ENGINEERING has the full privilege to use and publish all or any part of the material received.**
9. **Letters should be sent to the Prize Editor, DOMESTIC ENGINEERING, 1900 Prairie Avenue, Chicago.**

part of the equipment there and that she could save the cost of a return trip. She told me to wait until her husband came home and then she would help me to sell him the idea. He looked the work over and saw that it would be better with a new lavatory and told me to bring one along in the morning and do a complete job.

Then he said, "You're a clever salesman, I didn't think that a plumber had so much brains." I laughed and asked him why. He replied, "If you hadn't shown my wife your outfit in operation and she had not told the kids how nice it was, it would have saved me some money, but when you got them all started there was no port for me in that storm." He also remarked that he was against high-pressure salesmanship but that by going at it the way I did I slipped it over on him.

When the job was done, he counted $375 out of his pockets and paid cash, telling me that he did not have it when I started but borrowed it to settle up. So you see I made a $20 job of fixing a leak into a complete remodeling job and all by not trying to make a complete sale at once, by going slow on the high prices, and by getting in on the ground floor before I started to press him. I also used his wife and daughter as my salesmen.

Eight FHA Jobs in 45 Days

Trained in the big New York City shop of Jarcho Bros., John M. Forhecz, Garfield, N. J., started out for himself ten years ago and has built up a substantial business.

A strong believer in sensible, controlled advertising, he seized upon the FHA program as a good talking point. Since a great part of his business is done with customers who speak Hungarian or Polish, he started advertising in the foreign language newspapers read by his customers, using a 2 column by eight inch space to attract attention and carry his messages. The copy is very simple and to the point. His theme is that Uncle Sam is offering an opportunity for worthy people to have plumbing and heating work done on the installment plan at low finance charges and that he is the man to see about it.

Making up a list of old customers, and adding to it a small list of business men and home owners that he believes would be good prospects, Mr. Forhecz sends out letters like the one shown on page 42 of the October issue of DOMESTIC ENGINEERING. Circulars of manufacturers, bearing his imprint, are enclosed with each letter. In addition, boys are hired to deliver dealer-imprinted manufacturers' circulars to one-family and two-family houses in the nearby territory which Mr. Forhecz believes contains the greatest concentration of prospects.

Results? From the latter part of September, when he started his newspaper, direct mail, and house to house campaign, up to the middle of November, he reports 8 jobs of more than $200 each (and totaling more than $2,500) as traceable results from the first 1½ months of his advertising. Most of the projects were for cash or acceptable credit.

The cost? Try as he can, Mr. Forhecz is unable to find that he has spent as much as $50 for the first 1½ months for all his advertising. Obviously, he is continuing his campaign.

Idaho Prize Winner Is Busy

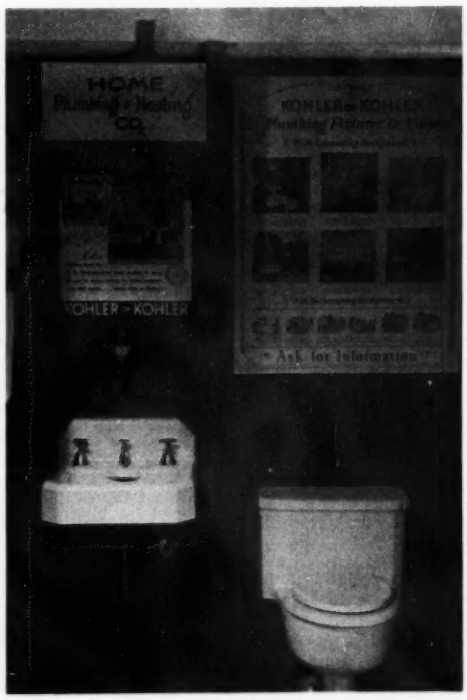
Remodeling Jobs Keep Him Booked Ahead—Expects Rush in 1935

"I am kept busy figuring all kinds of remodeling jobs and our men are all busy and work booked ahead," says J. A. Campbell of the Home Plumbing & Heating Co., Twin Falls, Idaho, in a recent letter to the Editor. "I look for more work next summer than we can handle." This active dealer is one of the prize-winners in the DOMESTIC ENGINEERING FHA campaign as announced in our December issue.

This year he has been able to keep seven men busy in a 10,000 population city which has, in addition, a fertile field for farm business.

Not only does Mr. Campbell use newspaper space, circulars supplied by the manufacturers, and maintain an attractive shop and display windows, but he gives no little credit for his sales success to having taken advantage of four additional publicity opportunities. One is the radio, another was active participation in a Magic City Jubilee parade late this summer, still a third was a House of Magic show staged by the Twin Falls Junior Chamber of Commerce, where he demonstrated his equipment, and now he has joined hands with two score other local merchants in a three-months Twin Falls Empire and Home Modernization exposition, where open house is maintained evenings and days.

A house is being remodeled, and will be given away



Idaho dealer roughs in and sets these fixtures for a 3-month home modernization show

Twin Falls held a Pioneer Celebration and Mr. Campbell showed how things were when he started back in 1911. With him on the wagon is Alex W. Murray, 86 years old, 71 years a plumber and the only living charter member of the National Association of Master Plumbers

at the end of the trade campaign. Mr. Campbell maintains a booth at exposition headquarters.

On the radio last summer he used a record made to advertise his products, and some of the results are attested by the receipt of orders for pump supplies from North Dakota, Louisiana and from as far away as North Carolina.

Not content with strictly home business, he features his pump business in the country. His territory is an irrigated section, farmers using deep wells for domestic water. Water softener equipment is one of the important parts of his business, and he makes it a point to quote on all school and other public jobs. Many of his contracts this year have been on time and material basis. He operates in a 25x100 foot shop, with basement, and carries from $6,000 to $7,000 worth of goods in stock.

Mr. Campbell is enthusiastic over the business being generated by the federal housing campaign and is taking advantage of every opportunity to get his share.

In his city since Aug. 1 over $81,000 in building permits have been issued and the community is exceptionally well organized under the national housing act, and all material and supply men report they are profiting by the campaign. A representative of the better housing committee receives applications at exposition headquarters, where the merchants and dealers maintain their displays.

FHA PROGRAM HELPS

An old railway section foreman's house was donated by railroad company and has been moved into one of the downtown streets of the city. It will be completely remodeled and equipped by dealers in furniture, lumber, heavier building goods, plumbers, electricians, furnace and stoker supply firms, hardware stores, and will be open to the public. Mr. Campbell is tieing in with this feature, in addition to maintaining his exhibit at the exposition building, which is a large vacant structure in the heart of the business district.

This plumbing dealer has stressed service during his 21 years of successful and continuous business operation in Twin Falls, has kept alert to new opportunities and cooperated in all civic projects. He handles the best of products, stands back of his work, and because of his known permanency and reliability has enjoyed an increased business in all departments.

"I know it is up to me to push this end of the building business if I wish to reap any reward," he says.

"The first FHA customer I heard of gave me an idea. I went to the bank personally and saw to it that his application for a loan was filed and accepted, not waiting to have the individual go to the trouble himself. Also, I wanted to cinch the deal before others in the business were aware, even, that the man was in the market."

He says he believes the provisions of the housing act will make it possible for many persons to improve their homes, and that next season will be among the best in the plumbing and heating industry.

As for sales arguments, Mr. Campbell says "most of the trouble has been finances, and I urge those who can afford it to contract for the work they need. By assuring them of my firm's ability to finish jobs before the extreme coldness of winter is here, I have developed several prospects, who otherwise might postpone installations for another season."

A Winner from Alabama

The Armstrong Brothers Plumbing Co., of Montgomery, Ala., organized in June of 1931 by D. E. and R. C. Armstrong, has enjoyed a slow but steady growth in business. Since the inauguration of the national Federal Housing program last September, this firm's business has grown so rapidly that the services of three more Armstrong brothers and their father, R. L. Armstrong, were needed.

D. E. Armstrong, a young man in his thirties and the guiding hand of the firm, said that he got his first federal housing job quite by accident. A lumber dealer friend of Armstrong's suggested that Armstrong take over a job that the lumberman had arranged. Not realizing what an important part that event was to play in his future business, Armstrong took it over and completed it successfully.

This enterprising plumber, encouraged by his first FHA job, then set out to get more of the new business on which home owners were given up to 3 years to pay. He placed his father, a former piano salesman who knew hundreds of Montgomery people, on a house-to-house campaign. At the same time he inserted a modest advertisement in a local paper and familiarized himself with the process of making contracts under the housing program.

Almost simultaneously with the appearance of the newspaper advertisement, telephone calls began to come in. Mr. Armstrong was amazed and delighted at the response of the public to the modernization plan. In October his FHA business amounted to $2,500, and for November it was $1,500, with prospects of it reaching the November figure or more during December.

Now You Can Do Something About Cross Connections

"When you stop at a hotel ask, 'Is Your Plumbing Approved?' "

FOR years now, the subjects of back siphonage and of cross connections have come up for periodic attention. They have formed the basis of discussion at numerous conventions. At a master plumbers meeting held a few months ago in Michigan, it appeared as though real progress had been made in setting the wheels in motion to correct dangerous plumbing. Here it was pointed out that in a certain city, the local health department had stationed a police officer in front of a hotel to prevent guests from entering because the plumbing was found to have health menacing possibilities through back siphoning and cross connections. However when this vitally important story was investigated by DOMESTIC ENGINEERING it was found that the officer had been removed, guests were patronizing the hotel and the health hazards still remained.

Code after code has been passed with positive prohibitions against back siphonage and cross connections and still countless instances of dangerous plumbing conditions are to be found where these codes are supposed to be in effect.

When the amebic outbreak occurred in Chicago eighteen months ago, the entire nation was aroused but we are still searching for sweeping changes which have come as a result of it.

Now, however, there is a new angle which all who are interested in the protection of public health can follow. The idea is based on the fact that hotel owners will spend large sums of money to remodel and refurnish their lobbies and at the same time disregard antiquated and worn out plumbing having a proven health menace to their patrons. In other words, remodeling money has and is being spent where it seems the public wants it spent. In short, the man who registers at the desk is the one who decides.

Therefore, DOMESTIC ENGINEERING recommends this slogan to the industry, "WHEN YOU STOP AT A HOTEL ASK, 'IS YOUR PLUMBING APPROVED?' " Let each one in the plumbing industry, each one connected with public health, ask this as a hotel patron and as a protection for his own health when he stops at a hotel. Let every convention and dinner meeting in our industry, local, state and national, select its gathering place on the basis of its plumbing being safe for those in attendance at the meeting.

Instead of placing all of our efforts on forcing, by law, the protection of public health, while our industry stands in a position to benefit by the desired improvements, this plan calls for each of us also to take the stand of the one whose health is to be proteced. Plumbing contractors, boards of health and engineers should work together in developing absolutely safe and approved plumbing installations in each individual case.

If you ask, "Why single out hotels?" the answer is that hotels are the starting place and that this should extend later to include restaurants, tourist camps, all public buildings, and the like. With this idea impressed upon the public consciousness, the relation of plumbing to public health in the home will follow as a natural consequence. As an extension of this idea, ask your neighbor to ask, the next time he stops at a hotel, "IS YOUR PLUMBING APPROVED?"

The Chicago Breaker Tests

THIS report deals with the official tests, made at Chicago on September 18 and 19, 1934, on siphon preventors and vacuum breakers for flush valves. The tests were made at the Hanley Plumbing and Metal Working Shop, located at 15th Street and Michigan Boulevard in Chicago. The Board conducting the tests was composed of the following:

Mr. Thomas J. Claffy—Representing the Chicago Board of Health.

Mr. J. R. Thompson—Chicago Board of Health.

Mr. J. Krimmel—Chicago Water Department.

Prof. P. C. Huntly—Armour Tech., Chicago, representing the Chicago Master and Journeymen Plumbers.

Prof. F. M. Dawson—Mr. A. A. Kalinske—both of the University of Wisconsin, representing the manufacurers of siphon preventors and vacuum breakers.

Mr. Charles Stanley and Mr. P. L. Cummings of the Master Plumbers' Committee helped conduct the tests.

A large number of manufacturers, representatives and plumbers witnessed the tests. All manufacturers had been notified by letter regarding these tests.

The tests were made using an apparatus which had large steel tanks to which a vacuum pump was connected, thus enabling the maintenance of a large or small

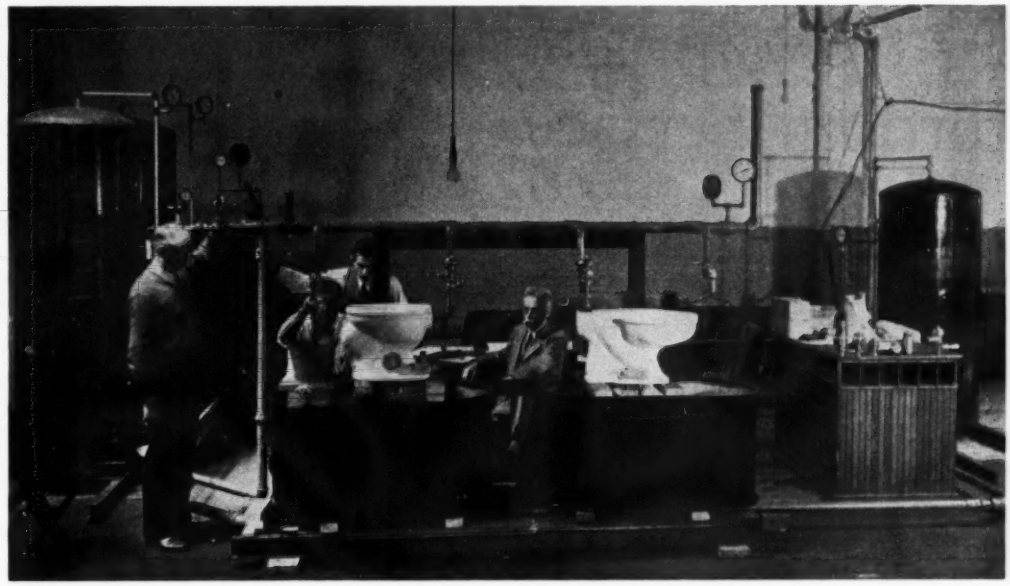


Fig. 1—Here is the set up used in the Chicago tests. Those shown here conducting the tests are, left to right, F. M. Dawson, P. C. Huntly, A. A. Kalinske and T. J. Claffy

vacuum (maximum of 23 in. of mercury) for a prolonged period of time. The piping was so arranged that the pressure could be changed quickly from a positive water pressure to a vacuum by the manipulation of quick-acting gate valves.

An agreement as to what tests the various siphon preventors and vacuum breakers were to pass was reached by the Board the day before the tests were started. This agreement, as given below, was read to the assembled group of manufacturers, and all who cared to do so were asked to submit devices for test.

Conditions under which back-siphonage tests on siphon preventors and vacuum breakers were performed are as follows:

1. Each vacuum breaker device is to be tested using a high pressure bowl as represented by the blow-out type, and a low pressure bowl, as represented by a wash-down type. The valve will be flushed about 6 times at each of the following pressures, 80, 30 and 10 lb. per sq. in. There will be no throttling introduced into the supply line except that normally present due to the use of a stop.

2. For observation for a back siphonage, a transparent tail-piece will be used which is submerged into a bucket of water.

   a. With the tail-piece submerged, all water must drop out of the tail-piece when the valve ceases flushing.

(Concluded on Page 152)

Fig. 2—Group of plumbing contractors, health department representatives, engineers and manufacturers' representatives in attendance at the tests

Offer a Complete Bathroom Service

SAYS—

Henry O'Callaghan

Chairman, Conference Committee,
National Association of
Master Plumbers

THE amount of work which has been created for the plumbing trade through the activities of the Federal Housing Administration is very encouraging.

The volume of business will doubtless increase as the nation-wide modernization campaign gains momentum during the early part of 1935.

I believe I can voice the opinion of the members of the conference committee, that there is one way in which every member of the National Association of Master Plumbers can, with little effort, add considerably to his own volume of modernization work, with greatly increased profit.

This is by impressing on the public that the plumbing contractor will handle the entire bathroom modernizing job.

There are many home-owners who have hesitated to undertake the modernizing of old-fashioned bathrooms because they dreaded the task of dealing with many individual contractors—the plumber, the carpenter, the electrician, the plasterer, the painter, and the paperhanger, tile setter, or linoleum contractor.

HANDLE THE COMPLETE JOB

One can readily understand the sense of bewilderment which must very nearly overwhelm some home-owners who have had but little experience in dealing with men in the building trade.

This situation has had two bad effects:

1. It has reduced the volume of bathroom modernization work.
2. It has caused some general contractors, architects, and department stores to offer a so-called "complete" modernization service to the home-owner.

I believe the time has arrived to correct this situation.

We should boldly announce to the world that bathroom modernization is our work—that we are specialists in everything pertaining to the bathroom—that we will handle the complete job.

As a matter of fact, many of the members of the National Association of Master Plumbers have been doing exactly this for many years, with great success and with increased profit for themselves.

These men sublet the work to other contractors, if it is extensive, or engage competent day labor, if it is not extensive.

What I have said amounts, in effect, to making a bathroom modernization job as easy to buy as an automobile. In merchandising terms, we are making a package sale.

By making it easy to buy we are reducing the sales resistance of the public.

We are also entrenching ourselves more firmly in our legitimate field of activity.

HOW TO START

Everyone who reads this may not feel competent to immediately undertake the variety of work involved in this program. Very well. My suggestion is that you start gradually and work into it. Start by getting other contractors to give you their bids on the work required of them. You will then be in a position to offer the home-owner a lump bid on the entire job, even though you will not actually be performing all of the work.

Contractors will not find it difficult to form the proper connections with competent men in other lines who will be glad to cooperate with them on a basis that will be profitable to all parties concerned, namely, the plumbing contractor, the home-owner, and the other tradesmen.

In this connection I have both commendation and criticism to report.

Your conference committee has recently filed a strong protest with the Federal Housing Administration against a statement which was made—inadvertently, I believe—to the effect that the public should always deal with a general contractor in all work involving more than one trade.

MANUFACTURER BACKS PLAN

We told the FHA hereafter to advise the public to go to the plumbing contractor for all bathroom modernization work involving any change in the fixtures. We also added the information that many contractors are prepared to offer a complete bathroom modernization service covering all trades.

We appreciate the advertising which will be released

(Continued on Page 132)

In January, announcement of an important move toward more effective merchandising will be made publicly by the Crane Co. Mr. O'Callaghan in this article comments on this new policy.

How to Use Estimate Tables to Find Water Needs

Practical example worked out for installation in home

By B. L. Mathews

RECENTLY an article was published in Domestic Engineering which gave a number of tables for estimating hot water requirements in residences and commercial establishments. This article has been developed to illustrate how these tables, which are reprinted here, are used in figuring typical installations.

The following can be taken as a typical problem in computing the size of storage system required for a private home. It is desired to calculate the correct size storage system to give an adequate supply of hot water for a nine-room residence having two bath rooms.

1. Table I shows that this home will require 220 gallons for a maximum 24-hour day.

2. For a private dwelling Table II gives a peak load of 1/7 the daily volume over a possible four-hour period.

$$\text{Peak load} = \frac{220}{7} = 31.4 \text{ gallons per hour}$$

Total water required for a possible four-hour load = $31.4 \times 4 = 125.6$ gallons.

3. Table V approximates the storage capacity as 1/5 the daily demand. Approximate storage required = $\frac{220}{5} = 44$ gallon tank.

4. In choosing a heater it is necessary to check its capacity to deliver the hot water required over a 24-hour day and also its ability to meet the peak demand. From the standpoint of twenty-four hour demand, the heater is only to deliver $\frac{220}{24} = 9.17$ gallons an hour.

However, for the four-hour peak demand, the hourly capacity of the heater should be calculated as follows:

$$\frac{\textit{Peak Load} - \textit{Storage of Tank}}{4} = \frac{125.6 - 44}{4} = 20.4$$

gal. per hr.

The calculations show that the installation should have a heater capable of delivering 20 gallons of 100 deg. rise water an hour with a 44-gallon storage tank. It would be considered fairly safe to use a standard 40 gallon range boiler in this home.

Assuming a heater efficiency of 70 per cent, Table V should now be used to determine the gas input or gas consumption of the water heater. The logical choice would be a heater of 25,000 Btu. rating which can produce 21.5 gallons of hot water an hour.

The input or rating of the heater in cubic feet per hour can be found by dividing the Btu. rating of the heater by the Btu. per cubic foot of gas. The Btu. value (calorific value) of the gas can be obtained from the local gas company.

Problem:—Design of hot water storage system for an apartment with six two-room suites, six three-room suites, and four four-room suites.

Water required per day:

For the 2-room suites	$= 70 \times 6 =$	420 gallons
For the 3-room suites	$= 80 \times 6 =$	480 gallons
For the 4-room suites	$= 90 \times 4 =$	360 gallons
Total water required daily		= 1260 gallons

Table I

Maximum Daily Requirements for Hot Water, Gallons for 24 Hours

Apartments and Private Dwellings Including Laundry

Rooms per suite	Number of bathrooms 1	2	3	4	5
1	60				
2	70				
3	80				
4	90	120			
5	100	140			
6	120	160	200		
7	140	180	220		
8	160	200	240	250	
9	180	220	260	275	
10	200	240	280	300	
11		260	300	340	
12		280	325	380	450
13		300	350	420	500
14			375	460	550
15			400	500	600
16				540	650
17				580	700
18				620	750
19					800
20					850

Approximate storage tank size = 1260/5 = 252 gallons.

Peak Load = 1260/7 = 180 gallons per hour.

Peak for a possible four-hour load — 180 × 4 = 720 gallons

Hourly capacity of heater to supply daily load = 1260/24 = 52.5 gallons.

Hourly capacity of heater required to take care of the four-hour peak load = (720 — 252)/4 = 117 gallons per hour.

It should be noticed that it is possible to alter the heater and storage tank sizes and still supply the required amount of hot water. The heater capacity can be decreased if the size of storage vessel is correspondingly increased and vice versa. This enables the contractor to design the system with proper regard for installation cost and amount of space available for installing the job. If space is not limited it would probably be better to use about a 360-gallon storage tank in this problem.

Table II

Peak Demands

For private dwellings and apartments the peak hourly demand is approximately one-seventh of the daily volume. The peak load may continue over a period of four hours.

For office buildings the peak demand is about one-seventh of daily consumption, with a duration of about two hours.

All day restaurants have a relatively small peak load. Restaurants serving one meal per day have a peak hourly demand of one-fifth the daily consumption for a two-hour period.

Factory peak loads should be taken for a one-hour period at about one-third the daily consumption.

Table III

Capacity of Storage Tanks

Private dwellings and apartments require approximate storage capacity equal to one-fifth the daily quantity of water used.

Hotels and restaurants require storage of about one-tenth the total daily consumption.

Office buildings should have one-sixth of the daily demand taken care of in storage capacity.

One meal restaurants and factories require a storage capacity of about 40% of the daily volume.

Then storage capacity = 360 gallons.

Hourly capacity of heater required to take care of the

(Continued on Page 134)

Examples of Everyday Mathematics

The question of what is per cent is considered

PERCENTAGE is an easily misused word. Even those who employ the term more or less constantly sometimes become confused and make assertions which are impossible. Nearly everyone has run across a statement in some place saying that a certain device will save 100 per cent of the fuel when it is only intended to convey the fact that half as much fuel is used as previously. Another common error is in stating that a boiler is running at 200 per cent *overload* instead of 200 per cent of rating—a very radical difference existing between these two statements as will be seen later. It is the purpose of this portion of the article to explain the basic principles of percentage and to present a few graphic illustrations of what the different percentage expressions mean.

Percentage may be defined as the ratio or proportion which the amount under discussion bears to some other base amount when expressed in hundredths. It may be found by dividing the amount in question by the base amount and multiplying by 100 or in a formula

$$\text{Amount} \div \text{Base} \times 100 = \text{Per cent.}$$

Thus, what per cent of 4 (base) is 3 (amount under discussion)? This is found—according to the above formula—by dividing the amount under discussion (3) by the base number (4) and multiplying by 100, or

$$3 \div 4 \times 100$$

which is

$$\frac{3 \times 100}{4} = 75 \text{ per cent}$$

Care must be taken not to confuse decimals and percentage; the per cent sign really means "divided by 100" and the removal of the per cent sign necessitates the dividing by 100 either by placing 100 as a denominator under the line or by pointing off two places with a decimal point. For example:

THE CORRECT SOLUTION TO THE SEEPAGE WATER PROBLEM

MODEL 33
Made in 1 size only
Maximum Capacity
1400 Gals. per Hour
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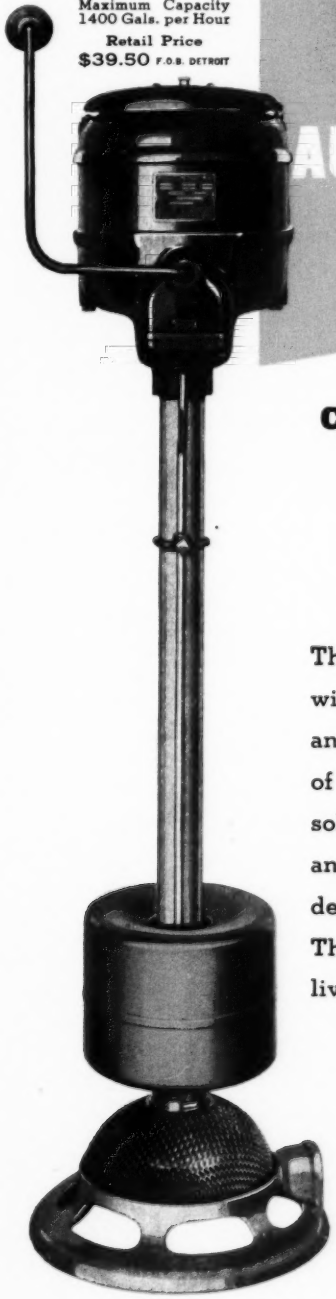
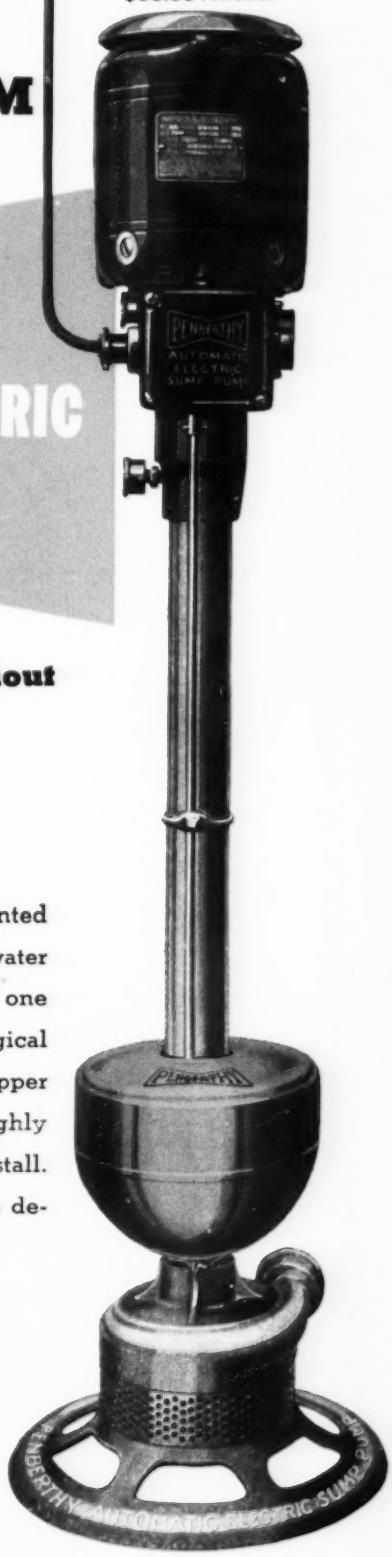


TRADE PENBERTHY PRODUCTS MARK

AUTOMATIC ELECTRIC SUMP PUMPS

MODEL K
Made in 5 sizes. Maximum Capacity 3600 Gals. per Hour
Retail Price (Size No. 1K)
$63.00 F.O.B. DETROIT



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The plumbing contractor who is confronted with the problem of removing seepage water and keeping a basement dry, will find one of these Penberthy Pumps to be the logical solution. Ruggedly constructed of copper and bronze throughout, they are thoroughly dependable, compact and easy to install. They are carried in stock for immediate delivery by jobbers everywhere.

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Manufacturers of Quality Products Since 1886

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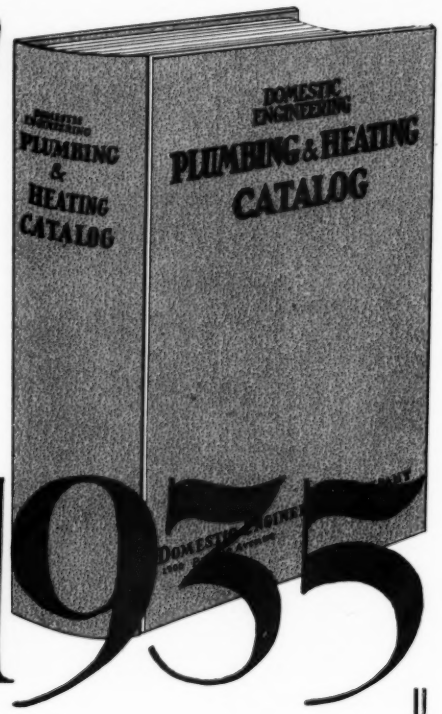

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Although the Federal Housing Administration is only fairly under way, millions of dollars are being spent, and—*the amount is steadily increasing.* OLD HOMES will be modernized and remodeled—OLD EQUIPMENT will need parts or complete replacement. BE prepared—KNOW your sources of supplies. That is why;

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$$75 \text{ per cent} = \frac{75}{100} = 0.75$$

All three expressions above are equal in value and simply are different forms of expressing an equal amount. The first is the percentage, or whole number form; the second is the common fraction form and the last is the decimal form.

Any per cent can be changed to the common fractional form by dividing by 100 because the per cent was originally multiplied by 100 in order to make it "per cent." Any common fraction can be changed to a decimal by dividing the numerator (or number above the line) by the denominator (or number below the line) and to a per cent by multiplying the decimal obtained by 100.

Thus ¾ changed to a decimal would be

$$3 \div 4 \text{ or } 0.75$$

and changed to per cent would be

$$0.75 \times 100 \text{ or } 75 \text{ per cent}$$

If the above is clear to the reader it only remains to determine what is to be used as the "base" against which the percentage is to be computed. The base taken is always considered as 100 per cent, and 100 per cent expressed either as a common fraction or as a decimal equals 1 as will be seen by changing the per cent to a common fraction or decimal as already described; thus

$$100 \text{ per cent} = \frac{100}{100} = 1$$

and

$$1 \times 100 = 100 \text{ per cent.}$$

Where most errors in computing percentage originate is either in selecting the "base" or in not considering the fact that the "base" is always 1 which, of course, is 100 per cent because

$$100 \text{ per cent} = \frac{100}{100} = 1$$

APPLICATIONS OF PERCENTAGE

A man burns 100 lb. of coal before installing a certain device and after putting in the device only burns 75 lb. of coal to get the same heating effect. What per cent of coal is he burning after he installs the device and what per cent is he saving?

In this case the coal originally burned is the "base" and this is 100 lb. and the coal burned later must be transposed into a percentage of the base amount. Also the coal saved must be changed into a percentage of the "base." Now the coal burned is 75 lb. and the base is 100 lb. so to change this into percentage according to the method given previously the 75 lb. would be divided by the base amount of 100 lb. and this result multiplied by 100 or

$$75 \div 100 \times 100 = 75 \text{ per cent burned.}$$

By a similar process the per cent saved is computed by dividing the pounds saved (25) by the base (100) and multiplying by 100, thus:

$$25 \div 100 \times 100 = 25 \text{ per cent saved.}$$

It is self-evident that the coal burned after the device was installed plus the coal saved must equal the original amount of coal (or base) and that the percentage of coal burned plus the percentage saved must also equal the original amount of coal which is proved by the following

	Lb.	Per Cent
Coal burned	75	75
Coal saved	25	25
Original base coal	100	100

and this shows that the percentages are correct.

If, however, the amount of coal burned after the device was installed exceeded the original, or base, amount then there would be an excess coal consumption over the base but the percentages would be computed by the same method with results as follows:

EXAMPLE IN CALCULATING COAL SAVINGS

Assuming that 125 lb. of coal were burned after the device was installed against 100 lb. burned before the device was installed the excess burned would be

$$125 \text{ lb.} - 100 \text{ lb.} = 25 \text{ lbs.}$$

and the coal burned later when compared with that burned originally would be obtained in percentage as follows:

$$125 \text{ lb.} \div 100 \text{ lb.} \times 100 = 125 \text{ per cent}$$

The excess coal (or loss) would be computed in percentage just the same as the saving was previously or

$$25 \text{ lb.} \div 100 \text{ lb.} \times 100 = 25 \text{ per cent}$$

As this is a loss the amounts may be checked by subtracting the loss from the coal burned after installing the device (instead of adding as was done where a saving resulted) and the result must be the original or "base" amount of coal, thus:

	Lb.	Per Cent
Coal burned later	125	125
Excess or loss	–25	–25
Original amount of coal	100	100

which also proves that the percentages computed are correct.

In expressing boiler loads the boiler rating generally is taken as the "base" or 100 per cent upon which to calculate. For example, a boiler is rated at 1,000 sq. ft. and actually carries 1250 sq. ft. What per cent of its rating is it carrying and what is the percentage of overload?

As the boiler rating is the *base* the percentage of rating is obtained as explained before by dividing the actual load by the "base" and multiplying by 100, thus

$$1250 \div 1000 \times 100 = 125 \text{ per cent}$$

and the overload in square feet is

$$1250 - 1000 = 250 \text{ sq. ft.}$$

which expressed in percentage is

$$250 \div 1000 \times 100 = 25 \text{ per cent.}$$

When a boiler is run at a load less than its rating the percentage is calculated in a similar manner as will be seen by assuming that the same boiler is carrying only 750 sq. ft. Then, with a rating of 1000 sq. ft., the boiler is carrying a certain per cent of its rated load which per cent is

$$750 \div 1000 \times 100 = 75 \text{ per cent.}$$

(Continued on Page 132)

Plumbing and Heating for the Dionne Quintuplets

*Modern facilities just completed help make record**

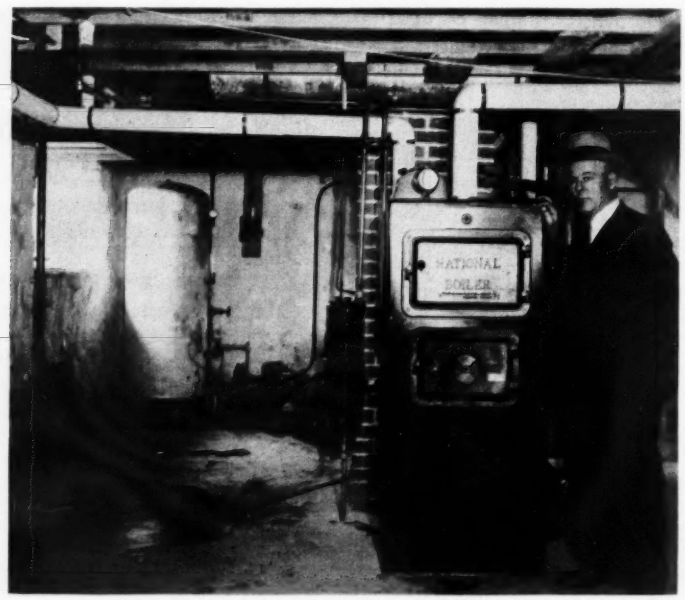

Fig. 1—Here is a basement view of the hospital. H. T. Gagnon, plumbing and heating contractor of North Bay, Ontario, Canada, who made the installation is shown beside the heating boiler. Note the automatic water system at the left

WHILE a very tired and exceedingly practical doctor of Callander, Ont., watched five successive births with incredulity in a humble settler's home near Corbeil at 4 a. m. on May 28, 1934, a world generally immunized to the marvels of engineering science, rose spontaneously, and in its enthusiasm all but embarrassed everyone connected with the incident, with the likely exception of the five principals.

Since statistics have been kept over the past 500 years, there are only 32 known cases of quintuplets. Only one group lived an hour; and of another group, just one baby lived fifty days. To the north country of Ontario, where the climate is notoriously bracing, belongs the unprecedented honor of being the background—though scarcely the cause—for these five marvellous mites who have, at the time of writing, passed their seventh living month with steady growth and increasing brightness.

For a time it seemed that lack of discretion would prevail and the babies would be bundled off for the edification of World's Fair visitors, but so wide and intensive was the interest created overnight that sounder judgments prevailed to the extent of making the babies wards of the Provincial Government.

Dr. Dafoe's comments in the American Medical Association Journal are homely and characterized by the absence of hysteria that was such a wonderful and commendable feature of his regular ministrations. Although apparently oblivious to the aura of fame which has suddenly descended around his previously inconspicuous head, he has accomplished something never before recorded. True, he has had the advantages of all possible co-operation. Offers of almost everything poured in from all points of the compass. Incubators were provided and arrangements even made for the special daily provision of human milk. Nothing was left to chance in this great struggle of a wondering world against the laws of precedent.

We can only speculate as to what would have been the outcome had the babies been born in the midst of

*Acknowledgement is given to *Plumbing, Heating and Air Conditioning Age* of Canada for permission to reprint this article.

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Here's a new tool to use in *your* modernization drive. Here's another help to aid you to get *your* share of the modernization dollar. Get the details today. Ask your jobber, or write to —

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No down payment — up to 3 years to pay

NO RECOURSE **NO HOLDBACK**

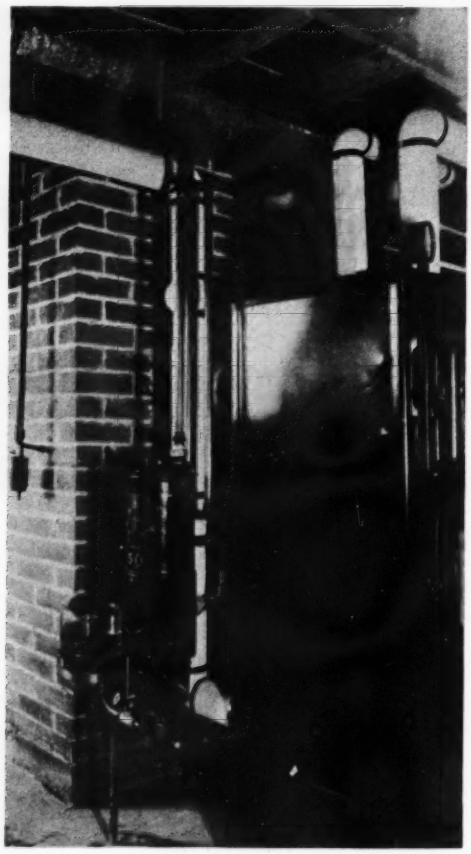


Fig. 2—The waterheating provisions are shown in this view. The storage tank is suspended between the joists

a howling blizzard, with roads impassable and the mercury jellied with cold. Even in the comparative mildness of the end of May, it was found necessary to provide hot water bottles and an abundance of blankets constantly; but fortunately, the warm summer months permitted the interval necessary for more elaborate precautions. Donations of all kinds soon assured the success of a proposed hospital to be built a few yards down the rough road from the Dionne home, and surprisingly little time was lost. In fact, within five weeks and one day of the start, the building was completed and the frail five had been moved successfully by car to a well constructed building equipped with heating boiler and system, a water heater, a complete sanitary system, and practically every other convenience desirable.

Constructed by residents of the district, the hospital is 55 ft. by 25 ft., one and a half stories high. The room known as the ward is equipped with a roll rim sink, 22 in. by 26 in., fitted with chrome plated faucets and a soap dish. This hot and cold water service is supplementary to the washing facilities in the cellar.

The bathroom adjoining the ward has a 5 ft. bath, a pedestal china basin, 19 in. by 22 in., with chrome fittings and a white china closet combination. The kitchen and cellar stairs are at the rear of the building. The office, observation hall, three bedrooms and pantry complete the main floor, with a total of eight rooms. For additional accommodation there is a bedroom upstairs and one in the cellar.

A sink with integral drainboard and chrome plated swing spout faucet is installed in the kitchen. All fixtures have hot and cold water supplies carried through copper pipe. About 300 ft. of brass and copper pipe were used in conjunction with a 30 gallon hot water storage tank.

MUCH EQUIPMENT DONATED

The bath, basin and closet combination was donated as was an oil heater for domestic hot water. The water pump has a capacity of 360 gallons, with a 120 gallon tank.

Water is drawn from a shallow well about 200 ft. distant, as a temporary measure. It is planned to drill a deep well, as the present supply is not entirely satisfactory for drinking.

Sewage disposal offered a considerable problem, as solid rock was encountered. The septic chamber is approximately 4 ft. by 4½ ft. and the dosing chamber is 4 ft. by 6 ft., 35 in. deep to the top of the natural ground, and covered with 3 ft. of earth, which had to be trucked in. Outside of the building there are 96 ft. of glazed tile and 270 ft. of 4 in. farm tile, with about 30 ft. of 4 in. soil pipe.

Only the closet and the kitchen sink are accommodated by the cesspool, all other water from baths, sinks and laundry being carried through the glazed and farm tile to the creek 200 ft. below the well.

There are two separate water systems in the building. The domestic hot water system is of the pneumatic type with an expansion tank. Water is heated by a brass water front in the stove, a brass coil in the boiler and a brass coil oil heater. In the near future

(Concluded on Page 132)

Fig. 3—Opening ceremonies at the Dionne hospital which was built especially for the five babies

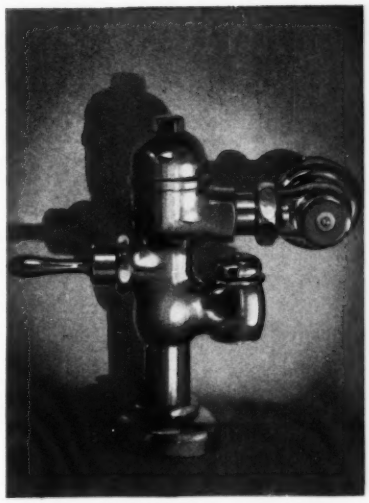
Guaranteed against BACK-SYPHONAGE

The Sloan Vacuum Breaker is guaranteed to prevent back-syphonage with any degree of vacuum in the supply line, when properly installed above the spill line of the fixture

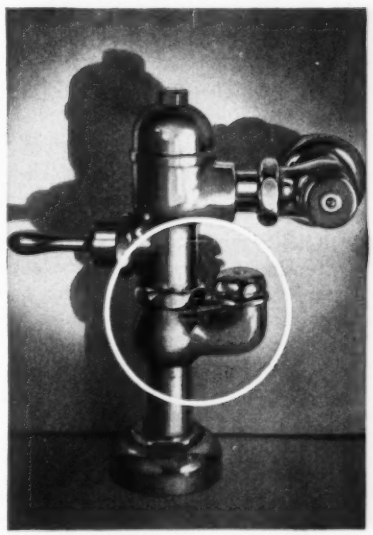
The Sloan Vacuum Breaker can be furnished **integral** with any Naval, Star or Crown Flush Valve in our catalog.

The **V-60** Sloan Vacuum Breaker is easily applied to old installations as well as new and will make **any** flush valve syphon-proof.

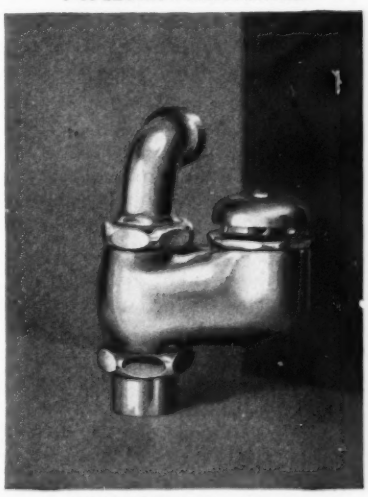
The **V-80** Sloan Vacuum Breaker positively prevents back-syphonage from any hospital fixtures with submerged inlets, such as arm, leg and continuous flow baths, receiving and pre-natal baths with hose sprays, fixtures with bedpan cleansing jet or hose spray, autopsy tables with hose connection, X-Ray developing and service sink cleansing jets.



Integral SLOAN Vacuum Breaker



V-60 SLOAN Vacuum Breaker



V-80 SLOAN Vacuum Breaker

EXCLUSIVE SLOAN FEATURES

1 The Sloan Vacuum Breaker has a full one-inch opening from the atmosphere into the supply connection to the fixture, which absolutely prevents a vacuum of any degree from causing back-syphonage.

2 The air valve closes instantly at the slightest flow of water to the fixture and opens the instant that the flow ceases.

3 The opening to the atmosphere is well protected and could not be easily stopped up, even with malicious intent.

4 The Sloan Vacuum Breaker cannot corrode or stick, as it has a Monel Metal bearing and parts of Composition M, an alloy used by the U. S. Navy to withstand the corrosive action of sea water.

5 Although a large volume of air is admitted, the operation is quiet and free from air noises.

6 The Sloan Vacuum Breaker has a waterway much larger than that through any flush valve; therefore does not restrict the flow to fixture, even though the pressure be low.

Full information may be obtained from any of our representatives, or from the main office.

SLOAN VALVE CO » CHICAGO

QUESTIONS AND ANSWERS!

1—

To the Editor:

Taking advantage of your engineering service, I would like to ask you to supply me with a table of the weights which ¼, ⅜, ½, ¾ and 1 in. pipe threads will support and also a table of ⅛ to 1 in. steel rods which I can use in making a comparison of the carrying strength. Also can you inform me of the weight of one section of wall radiation having 9 sq. ft. rating?

Newark, N. J. M. M. A.

To the Reader:

The carrying strength of steel pipes for any size, when in tension and not in compression or used as a column, is the tensile strength of the pipe itself and the load required to shear off the thread from the pipe for the length that the thread is engaged with the fitting. The same thing applies to bolts except that the shearing load on the bolt thread is for the length of thread inside of the nut and engaged with the nut thread a distance usually taken as ¾ of the bolt diameter.

If the pipe will be parted in the shaft before the threads strip off of the end, then the tensile strength of the pipe will be the limiting factor while if the threads will strip before the pipe itself will part, then the threads are the limiting factor. We assume that your question refers to the comparative strengths of bolts and pipe when used in pipe hangers and under tension. When pipes are used as columns they are liable to buckle and bow before either the thread or pipe strength is exceeded so that the tables quoted herein must not be construed to apply to pipes used in place of a column or shaft where the pipe is under compression.

Table I shows the pipes in the sizes requested and the area of metal and loads the pipe will carry; it also shows the area of thread which must be sheared off and the load which would be considered safe on the threads. It must be remembered that in making such comparisons the ultimate load, or load which actually would cause failure, never is used; instead a safe working stress is substituted and the strength is computed on what the pipe will carry with safety. Usually on steel a tensile stress of about 15,000 lb. per. sq. in. of metal is considered as good conservative design practice and shear may be taken as 10,000 to 12,000 lb., although some designers go somewhat higher. In Table I 15,000 lb. per sq. in. has been used for tension and 10,000 lb. per sq. in. used for shear. In order to place the bolts on the same basis the same safe working loads have been used in Table II for the bolts.

You will find that most wall radiation runs between 7 and 8 lb. per sq. ft. of nominal rated surface.

TABLE I—PIPE

Nom. Pipe Diam. In.	Area of Metal Sq. In.	Safe Load at 15,000 Lbs.	Diam. at Root In.	Thread in Fitting In.	Area in Shear Sq. In.	Safe Load 10,000 Lb.
¼	0.125	1,880	0.4678	1 7/16	1.73	17,300
⅜	0.166	2,500	0.605	1¼	2.36	23,600
½	0.249	3,750	0.721	1 5/16	2.96	29,600
¾	0.333	5,000	0.931	1⅜	4.00	40,000
1	0.495	7,500	1.16	1⅝	4.98	49,800

TABLE II—BOLTS

Nom. Pipe Diam. In.	Area of Metal Sq. In.	Safe Load at 15,000 Lbs.	Diam. at Root In.	Thick. of Nut In.	Area in Shear Sq. In.	Safe Load 10,000 Lb.
¼	0.049	750	0.185	7/16	0.078	780
⅜	0.110	1,650	0.2936	9/16	0.254	2,540
½	0.196	2,950	0.4001	⅝	0.439	4,390
¾	0.442	6,600	0.6201	11/16	1.08	10,800
1	0.785	11,800	0.8376	¾	1.94	19,400

2—

To the Editor:

To settle a little matter of discussion, can you tell me who has the correct interpretation of our plumbing ordinance?

1. *Don't guess! When you are called upon to design and install pipe hangers or similar framework for carrying heavy loads, which involve screw threads, make sure that the loads you place on them will not cause failure. Here is a table to assist you.*

2. *Another argument! Two methods of venting a plumbing installation are under discussion and the consulting engineer to whom the matter was referred gives a third method which he prefers.*

3. *Formula is given for calculating the flow of steam through an orifice. The reader requested a table but this cannot be presented here because a different amount of flow will take place for every pressure and every size of orifice.*

This plumbing ordinance requires that no trap shall be placed more than 12 ft. from its vent, this distance to be measured along the central line of the waste or soil pipe from the trap seal to the vent opening.

A claims that the trap can be placed as shown in Fig. 1, and will comply with the code.

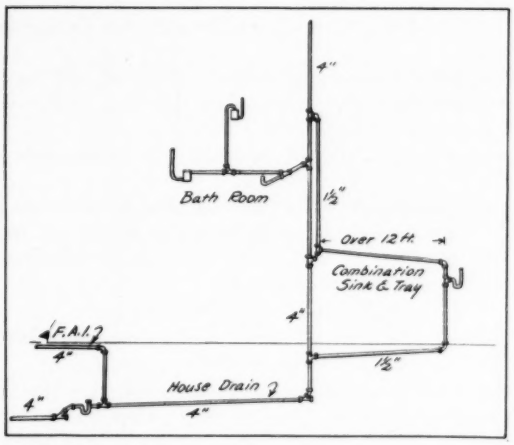


Fig. 1

B claims that the venting and location of the trap as shown in Fig. 2, is as required, and intended by the code, and that if the waste discharges into the soil stack as in Fig. 1, the trap will not be vented.

Massachusetts. C. T. H.

To the Reader:

We believe that if we could read the entire code section referred to in this inquiry, we would find that what is intended is that non-siphon traps may be used

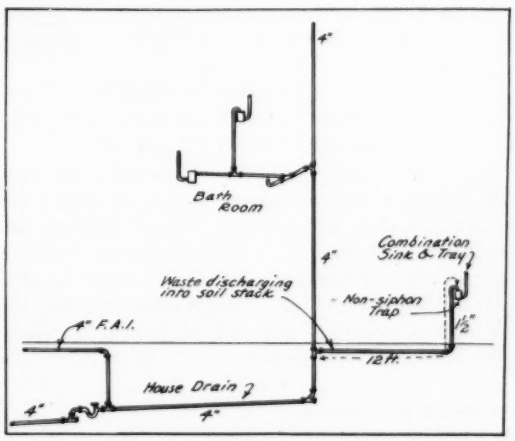


Fig. 2

without venting when within 12 ft. of the vent stack, but that when further removed they must be vented.

As between Figs. 1 and 2, we prefer the work shown in Fig. 2, although we feel there is much to be desired in both layouts.

When the waste from the non-siphon trap is connected into the soil stack, as in Fig. 1, waste from the bathroom in falling through the stack past the waste entrance from the combination fixture, will exert more or less siphonic influence on the trap. When connected into the foot of the vent stack, as in Fig. 2, this objectionable feature is removed, and that is why we prefer the method of Fig. 2.

NEITHER LAYOUT ACTUALLY VENTS

However, to our way of thinking, neither layout actually vents. If it is desired to effectively vent this fixture, it will have to be done according to such a method as shown in Fig. 3.

A trap is vented in order to supply air to the seal of the trap, and thus to overcome any siphonic tendency. It is necessary, however, in preventing trap siphonage, to bring in the supply of air at a point close to the trap seal (or crown of the siphon). If siphonage actually

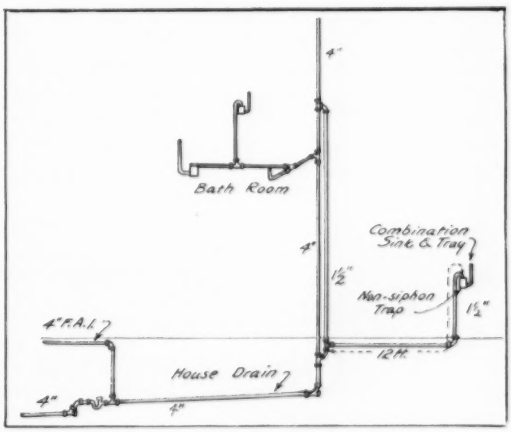


Fig. 3

is established, it cannot be broken by supplying air at a point so far below the seal as is done in both Figs. 1 and 2.

If in order to comply with the code, the method of Fig. 3 is to be used, it would not be necessary to use a non-siphon trap, but an ordinary P-trap could be used.

The city whose plumbing code we are discussing, allows the extensive use of non-siphon traps. Therefore, whether we favor the use of this type of trap or not, use of them in this instance is according to the code, and therefore is not a point open to criticism.

3—

To the Editor:

Can you tell me where I can obtain a table showing the pounds of steam passing through a given orifice to the atmosphere—pipe size openings—at a given pressure? Any information you can pass along will be appreciated.

North Carolina. H. R. E.

To the Reader:

The flow of steam through an orifice reaches a maximum velocity when the absolute pressure on the dis-

charge side does not exceed 58 per cent of the absolute pressure on the inlet side. Absolute pressure, of course, is gauge pressure plus 14.7 lb., for the atmospheric pressure. Thus, 25 lb., gauge is 25 plus 14.7 or 39.7 lb., absolute, and atmosphere is 0 lb. plus 14. 7 lb., or 14.7 lb. absolute. When the pressure on the discharge side exceeds 58 per cent of the absolute pressure on the inlet side, there is a gradual reduction in the velocity of flow until the two pressures are equal when all flow ceases.

HIGH VELOCITY AT 58 PER CENT

When the discharge pressure is 58 per cent or less of the inlet pressure, a very high velocity is obtained usually ranging around 870 ft. per second and this velocity will not be exceeded no matter how much the difference in the two pressures may be. Certain peculiarities of orifice flow, however, limit the available area of the orifice to between 60 per cent and 70 per cent of the actual area; usually—for safety—in calculating reducing valves for example the efficiency of the orifice is not taken as over 50 per cent.

We cannot undertake to present a table here such as that requested, simply because a different amount of flow in pounds will take place for every pressure and for every size of orifice. You may calculate any particular condition you have in mind by the use of the formula

$$\frac{A \times E \times V \times 3600}{144 \times \text{c.f.}}$$

whenever the discharge absolute pressure is 58 per cent or less of the inlet pressure.

A equals the area of the orifice in sq. in.

E equals the efficiency of the orifice—usually 50 per cent.

V equals velocity through orifice, 870 f.p.s.

c.f. equals cubic feet in a pound of steam at the pressure used.

Example: How many pounds of steam will be delivered per hour through a 1 in. diameter orifice with 100 lb. on the inlet side and 5 lb. on the outlet?

Solution: The area of the orifice in square inches is

$1 \times 1 \times 0.7854$ or 0.7854 sq. in.

and the percentage of orifice available is about 50 per cent. The number of cubic feet per pound of steam at 100 lb. gauge is 3.84. The formula by substitution of the figures now becomes

$$\frac{0.7854 \times 0.50 \times 870 \times 3600}{144 \times 3.84} \text{ or } 2{,}459 \text{ lb.}$$

Our reader's attention is called to the fact that this discharge is not that of a pipe with an open end, where the matter of pipe friction all the way along the line would enter into the calculation, but is only that for an orifice with an unlimited supply and a maintained pressure behind the orifice.

Questions for Readers to Answer

The following question was asked in the November issue and the following answer is by a reader:

What percentage of increase in heat emission is obtained by raising the steam pressure in a steam radiator from 1 lb. to 5 lb.?

THE ordinary steam radiator has a heat emission of 240 Btu. when standing in an ordinary room temperature of 70 deg. Fahr. and supplied with steam at 1 lb., gauge, the steam at this pressure having a temperature of almost exactly 216 deg. Fahr. The difference in temperature between the steam in the radiator and the surrounding air is

216 deg. Fahr. — 70 deg. Fahr. or 146 Fahr. degrees. The transmission from the radiator per degree of temperature difference between the steam and the air is

240 Btu./146 degrees or 1.645 Btu.

When the steam pressure is increased to 5 lb., gauge, the temperature is increased to almost exactly 227 deg. Fahr. and, if all other conditions remain the same, the transmission of the radiator per square foot will be increased to

(227 deg. Fahr.—70 deg. Fahr.) × 1.645 Btu.

or

157 deg. × 1.645 Btu. or 258 Btu.

The percentage of increase is the increased radiation in Btu. divided by the original radiation in Btu.; the original transmission was 240 Btu. and the transmission with 5 lb. pressure increased to 258 Btu., or an increase of

257 Btu.—240 Btu. or 17 Btu.

and the percentage of increase, therefore, will be

17 Btu./240 Btu. or 7.1 per cent

This is not strictly the whole of the story, as a radiator containing a higher pressure steam and with a correspondingly higher temperature, the air flowing across the surface is heated to a slightly higher degree and accelerates its movement. As this increase in air velocity and the added heat transmission resulting therefrom seldom exceed 5 per cent it usually is neglected except in very exact calculations.

How Would You Answer This Question?

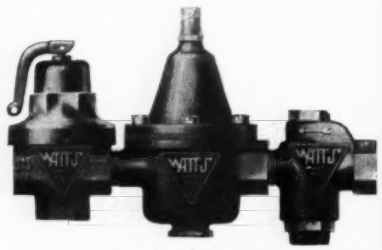
In an installation requiring 1,000 gallons of hot water at 150 deg. Fahr. once every three hours during a draw-off period of 5 minutes and with the water coming in at 50 deg. Fahr., if the water is heated by steam what arrangement would introduce the least hot water load on the steam boiler?

Answers based upon your experience, suitable, will be paid for and published in the March issue.

Automatic Heat *and* Air Conditioning

A compliment, which we think is one of the best we have received lately, tells us indirectly what a reader thinks about Mr. Thomas' series of articles on electricity. (See 4th part on page 71). He says he can't wait for the rest to be published.

Sell Comfort — and Automatic Heat and Air Conditioning Sales will take care of themselves



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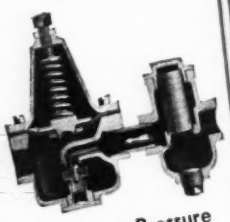

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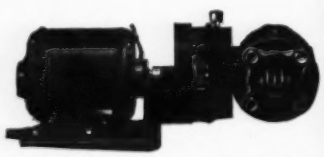

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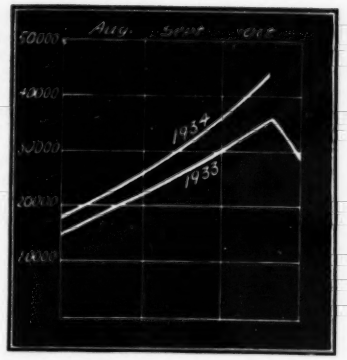


Increase in cast iron boiler shipments

Business Is Better

Substantial increases recorded not only in comparison with 1933 volumes but also with seasonal trends

By *The Marketing Staff* of
Automatic Heat and Air Conditioning

As 1935 opens, we hear from all sides that 1934 was a good year but that the New Year will be even better. The following are just a few of the many indications of definite improvement. At the present writing, carloadings have increased for six consecutive weeks; steel production is increasing in the face of what ordinarily would be a seasonal drop; department store sales are increasing more than seasonally, and electric power consumption has increased steadily since September.

With general business showing such a steady upward trend, it is natural to expect that the automatic heat and air conditioning business would enjoy a similar increase. As a matter of fact, the increase in automatic heat and air conditioning sales has been so pronounced that it might well be said that this industry is setting the pace for general business.

SPREAD IN SALES CURVES WIDENING

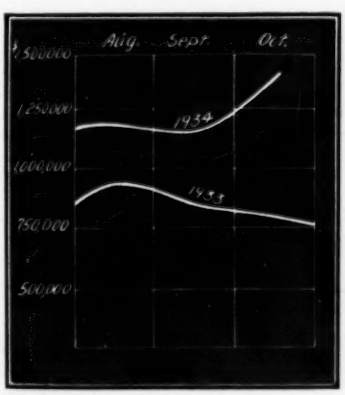
What is most encouraging is to note from our charts how the spread between the 1934 and 1933 sales curves of the products of this industry is widening. As a matter of fact, based on the first eight months of 1934, the increase in oil burner sales during September and October was 13 per cent greater than seasonal, for stokers 5.8 per cent more than seasonal and for cast iron boilers 21.3 per cent more than seasonal.

In September and October, oil burner sales were 18.9 per cent greater than last year, stoker sales were 43.8 per cent greater and industrial air conditioning equipment orders were 46.5 per cent greater. Figures are not available on domestic and commercial air conditioning but from reliable reports the increase in this type of equipment was even greater.

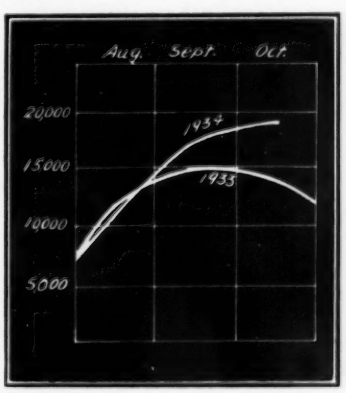
AUTOMATIC HEAT EQUIPMENT SALES UP

Monthly shipment figures on conversion gas burners and gas boilers also are not available. However, the latest report of the American Gas Association shows that at the end of September, 1934, there were 94,600 buildings heated by manufactured gas as against 48,400 at the same date in 1933. In natural gas territories, this report included house heating jobs with the entire domestic load; hence, we can not tell what the increase was for these territories during the same period. However, the annual report from the same source showed an increase of 11,667 house heating jobs from July 1, 1933, until July 1, 1934, in natural gas territories.

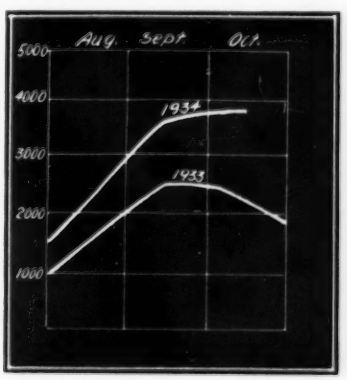
(Continued on Page 98)



Sharp rise in air conditioning orders



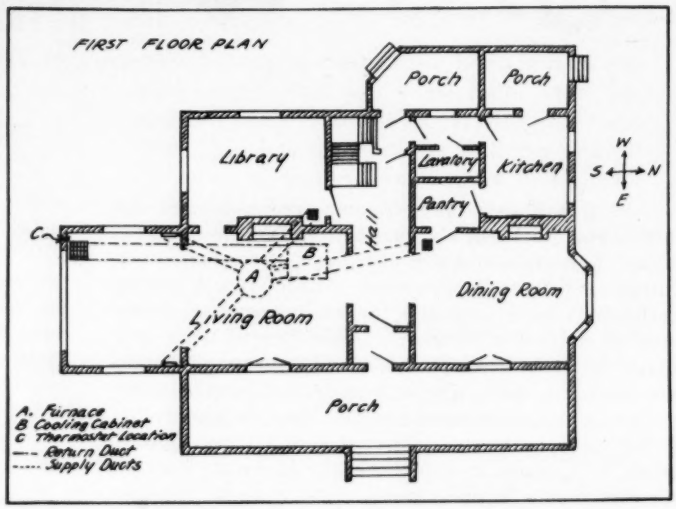
Volume of oil burner shipments shown



Substantial gains in stoker shipments

Fig 1—The photo at the left gives an idea as to the size and general requirements imposed upon the system. This building is twenty-five years old and has no insulation or weather-strips

Fig. 2—Below is the first floor plan which shows the general lay-out of the supply and return ducts, the cooling cabinet and the room temperature control



How an Engineer Air Conditioned his Home is told

By M. F. May

Sales Ammunition Cost of A. C. with

OUR home is in Palos Park, a suburb about 25 miles southwest of Chicago. While our summers on the whole are not excessively hot, we are always sure of about three weeks of extremely hot weather and a number of days that are uncomfortably warm. As a fair average it can be said that a cooling season for the normal home in this locality will be about six hundred hours of operation and all operating costs given later will be on this basis.

When we decided to put in this cooling system we turned towards well water as a cooling medium, for several reasons. First, we have no city water and needed additional water for domestic use and lawn sprinkling, and, second, because we knew we could get water at a temperature of about 52 degrees with which we could get excellent results with a low operating cost and comparatively low installation cost. Everything worked out very closely as we had estimated, as we struck a good flow of water at a depth of 203 feet. The temperature of the water was 51° F. and did not vary all summer long.

Our house, built about twenty-five years ago, is of frame construction without any insulation whatsoever. The windows are not weatherstripped. Neither do any of them have awnings, so the heat gain is rather high. The cooling load for the first floor, which is all we wanted to cool at first, figured out to be equal to four tons of refrigeration, assuming a 15 degree differential between outside and inside temperatures. The rooms we cooled and their sizes are as follows:

Living Room, 34 ft. by 16 ft. by 9 ft.
Library, 13 ft. by 13 ft. by 9 ft.
Hall, 7 ft. by 19 ft. by 9 ft.
Dining Room, 16 ft. by 18 ft. by 9 ft.
Kitchen, 10 ft. by 11 ft. by 9 ft.

The house is heated with a hot air furnace, so in order to simplify the installation, I decided to install the cooling equipment in conjunction with the furnace, using the existing supply and return ducts. The cooling coils and

fan were installed in a cabinet made of a board insulation. The regular cold air return duct to the furnace was blocked off and extended to the cooling cabinet so that the air to be cooled would be drawn up vertically through the cooling coils by the fan. The cooling coils were placed horizontally with a drain pan below to catch the water removed from the air. The bottom of this pan was connected to the basement floor drain. A short sheet metal connection was made from the outlet of the fan to the bottom of the furnace casing. The fan and motor were set on cork and rubber pads and canvas connections were put in supply and return ducts to eliminate noise.

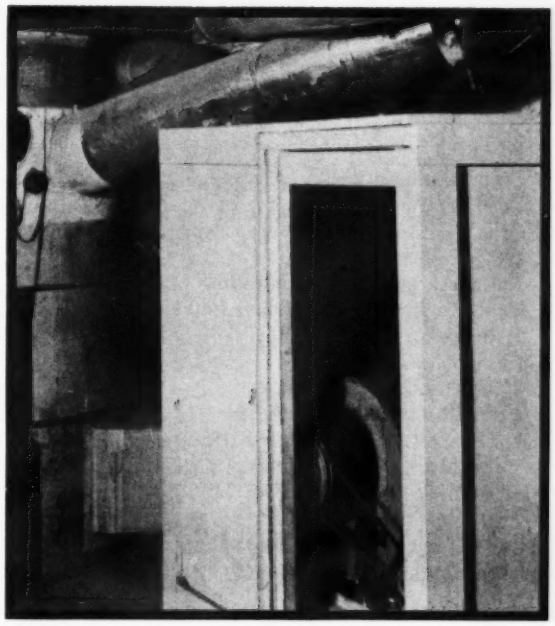


Fig. 4—The cabinet for the blower and the cooling coils was made of a board type insulation. Its position in relation to the heating plant and duct work is indicated in this photo

HOW THE SYSTEM IS CONTROLLED AUTOMATICALLY

The system is completely automatic. The well pump is controlled by a pressure switch in connection with a 120 gallon storage tank in which pressures from 25 lb. to 50 lb. are maintained. The cooling system proper is controlled by two thermostats in the living room, one controlling the fan, the other operating the motor valve supplying water to the cooling coils. The latter thermostat is set at the desired room temperature and turns the water on and off as the temperature of the room rises and falls within the range of the thermostat. The fan thermostat is set about three degrees lower than the water thermostat, so that the fan starts before the water is turned on and operates continuously until cooling is no longer required. Continuous fan operation is necessary to prevent stratification of the air.

The cooling coils are of the copper tube and fin type with a metallic bond between the fins and the tubes to insure lasting fin contact. The four coils, each two rows of tubes deep, were assembled one on top of the other, making a coil surface eight rows of tubes deep. The coils were piped in series using the counter-flow principle, that is, the cold water enters the bank of coils at the top and flows through the coils and comes out at the bottom, whereas the air enters at the bottom of the bank of coils and comes out at the top. In this way it is possible to get final air temperatures within five or six degrees of the entering water temperature with a comparatively small flow of water.

is Found in Well Water

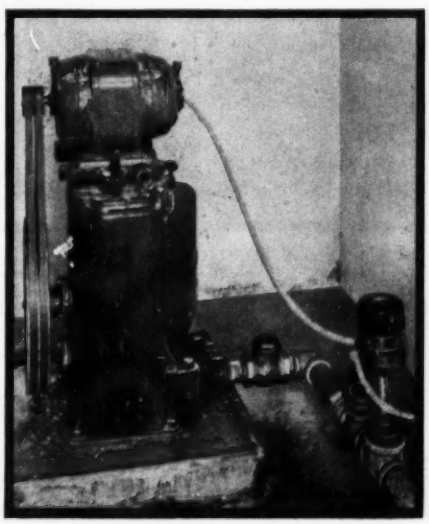


Fig. 3—A good flow of water was struck at 203 ft. and the temperature of the water, which was 51 deg. Fahr., did not vary at any time during the summer. Here is the supply pump

TEMPERATURE OF 80 DEG. FAHR. INSIDE, 100 OUTSIDE

After a number of observations the system was adjusted to give about 1,100 cu. ft. of air per minute and a water flow of 5 gallons per minute. Under these conditions we obtained the equivalent of 3 tons of refrigeration when maintaining a temperature of 80 deg. Fahr. in the house. On mild days when the outside temperature was about 85 deg. Fahr. it was possible to get the inside temperature down to 68 deg. Fahr. which of course is entirely too cold, but with outside temperatures of 100 to 105 degrees we had no trouble maintaining 80 degrees inside. The relative humidity inside varied somewhat with outside conditions but was nearly always between 52 per cent and 59 per cent. All doors and windows were kept closed but about 5 per cent to 10 per cent fresh air was brought in from the basement, which kept the air in excellent condition.

The cost of the entire installation, which was $1104.00,

including the well and all labor and material, can be outlined as follows:

Cost of Installation

Cost of drilling well	$ 305.00
Deep well pump with 1 h.p. motor.	
Capacity 540 gals. water per hour.	
120 gal. storage tank.	
Automatic switch for controlling pump.	
Concrete pump pit with door into basement.	
¾ in. motor valve.	
Furnace fan.	
⅓ h.p. motor for fan.	
2 thermostats for cooling use.	
4 blast coils with 5¼ sq. ft. face area, each coil 2 rows of tubes deep.	
Sheet Metal Work.	
Pipe and fittings.	
Electric wiring.	
Labor	799.00
Total cost of installation	$1104.00

All equipment was put in oversize, so that if required the equivalent of 5 tons of refrigeration can be obtained. On this basis the installed cost per ton of refrigeration was equal to $220.80.

Some of the test readings made are as follows:

Record of Operating Performance

Air circulated	Approx. 1100 c.f.m.
Entering Water Temp.	51 deg. Fahr.
Outlet Water Temp.	65.5 deg. Fahr.
Water circulated	5 g.p.m.
Outside Temp.	96 deg. Fahr. Dry bulb 80.5 deg. Fahr. Wet bulb 51% Relative humidity 75 deg. Dew point
Inside temperature	80 deg. Fahr. Dry bulb 67.5 deg. Fahr. Wet bulb 52% Relative humidity 61 deg. Fahr. Dew point
Temp. of air leaving coils	58 deg. Fahr. Dry bulb (nearly saturated)
Cooling capacity	3 tons refrigeration

The cost of operation for this past summer was very low, as the only operating cost was for electricity to pump the water and operate the fan. The electric rate used is $.02 per Kilowatt hour as our other current consumption brings our rate down to this figure. Basing the cost on 10 hours of continuous operation at a capacity equivalent to 3 tons of refrigeration we obtained the following cost:

1 h.p. motor on well pump operating 5.55 hours to give 5 g.p.m. for 10 hours	5.55 kw.
⅓ h.p. motor on fan for 10 hours	3.33 kw.
Total power consumption	8.88 kw.

8.88 kw. at $.02 per kw. = $.178 per 10 hour day or $.0178 per hour.

Assuming a cooling season of 600 hours at $.0178 per hour, gives a total operating for the season of $10.68.

The maintenance on this type of system is very low as there is nothing to wear out except the bearings on the pump and as these are bronze bushings, they can be replaced at very little cost. We are now using the fan in connection with the heating system and find that we get much better heating results than ever before. We are using the well for domestic water all year round and the water from the cooling coils in the summer is used for lawn sprinkling so that actually the only parts of the cooling system not in use the year around are the cooling coils.

WINTER AIR CONDITIONING TO BE ADDED

The cost of operating a system of this type is so low as to be practically negligible and the comfort obtained is so great that the original investment is worth while. Next year we plan to add a humidification device for winter use and also air filters. We will then have a complete air conditioning plant giving air at required temperature winter and summer, clean air, air circulation and humidity control. These four conditions are the essentials of a complete air conditioning plant.

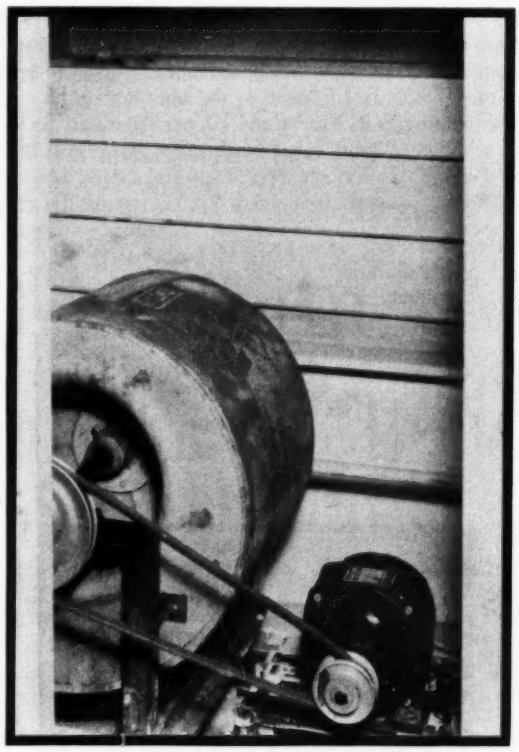


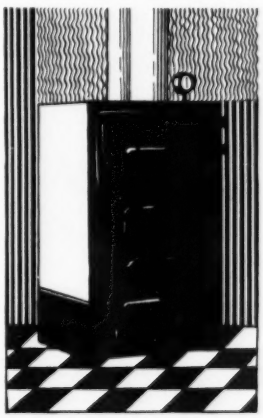
Fig. 5—This view was taken looking through the door of the cooling cabinet. It shows the motor and the blower in the foreground and the cooling coils in the background. These coils were piped in series counter-flow

Automatic Heat Sales take Up Slack in Business

Two effective methods are used to obtain new prospects

LONG ago, that is, about 1900, John G. Keller, Newark, N. J., earned a place in his city as a busy plumbing and heating contractor handling varied lines of work. Results were satisfactory until after the universal business sickness, that started in 1929 in this city. What to do about it was settled in Mr. Keller's case by the addition of a good line of automatic heating equipment.

It seemed that regular customers, in fact, almost all building owners, were interested in equipment to reduce fuel bills, save labor, ease the heating job. Automatic heating fitted into the situation well and literally dozens of installations were made by Keller in every conceivable type of building from bungalows to half-acre factories. Appliance business grew so enormously that the contractor's sales force, now numbering two outside engineers besides the proprietor, although it has numbered 12, virtually gave up soliciting general heating work and, instead, solicited automatic heating appliance sales.



Before long effort was centered on mercantile and industrial and public buildings rather than on installations in residences.

Obtaining prospects, always a problem in automatic heating appliance selling, is handled by John G. Keller in two ways. First, by personal solicitation of the owners of the buildings in question, second, by constant reference to old customer card files. These are finely combed and graded as to, A, ability to pay and, B, progressiveness as to modernization. Mr. Keller, from his 34 years' development of his business, naturally, contacts the old clientele. The salesmen call on cold prospects.

As a means of getting general heating work there is nothing to beat automatic heating equipment selling, declares Mr. Keller. Not long ago he was asked to figure on equipment for an industrial plant. He found that complaints emphasized the lack of capacity of the boiler. The heating system was of the hot water type.

One of the first remedies apparent was the need of suitable insulation on the boiler, the old ½ in. thickness of asbestos having skinned off in patches 3 ft. square and being cracked in numerous other places. Keller knew that most boilers lose a very considerable portion of the total heat generated if they are bare, and the boiler in question to all intents and purposes was virtually bare. So the estimate included 2 in. of covering over all.

The radiation, old fashioned pipe coils could not heat at remote parts of the lines. Circulation, even when water temperature was above 180 deg. Fahr. was sluggish. So, also in Keller's estimate went the cost of removing the coils, of substituting unit heaters and of adding a circulating pump as a guarantee against uneven room temperatures and cold ends. Then the cost of the burner was added. To make a long story short, the contractor came away with a $6,200 contract in his pocket.

This is regarded by Mr. Keller as only typical of heating appliance selling in the larger types of buildings. Here one secures profits from remodeling as well as from apparatus and the profit average often runs into hundreds of dollars.

Oil burner selling daily becomes an easier task, holds Keller. Plant owners, many of whom have oil burners in their homes, investigate the potentialities in their factories. Propaganda and national publicity have blasted an eagerly receptive market for the contractor. The Newark dealer here discussed finds oil burner sales can be made at this time because of the ability of automatic heat devices to replace boiler room help. The $1,000 or more yearly saved through the shifting of engineers to shop work upon the introduction of oil burners goes a long way to pay for the burners and necessary modernization changes.

FINDS FHA REAL HELP IN SALES

Although financing is not so severe a problem in industrial selling as in residence selling, this, nevertheless, has been and continues to be a problem. Numerous Federal agencies have come to the relief of the prospect in many instances and commercial finance companies in some others. It is significant, however, that although nearly all prospects complain of inability to finance except on long terms and high interest rates, when the time comes to purchase the equipment either the full amount is paid in cash when the job is done or the greater part of the contract price has been borrowed and turned over to the contractor. Mr. Keller has great faith in the new FHA loans as a real help to selling.

The Control of Oil Fired in Model Home is Made for

Fig. 1—The exterior of the model home is shown at the right. It was designed to show those who are interested in homes what has been made available for their convenience and comfort. It is significant that air conditioning is one of the most outstanding features of this modern building

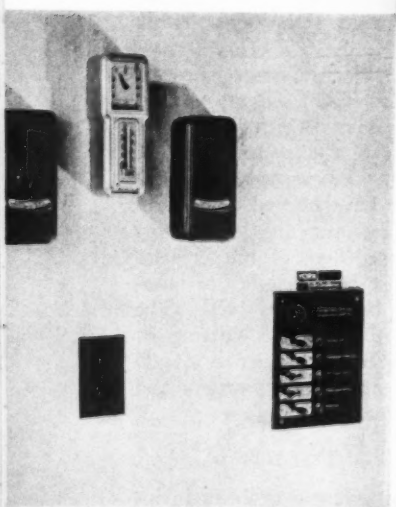


Fig. 2—These control instruments were located conveniently, yet inconspicuously at the foot of the stairway leading upward from the main hall. They consist of a clock type thermostat, two humidity control devices and a manually operated control panel. In effect, these items constitute the brains of the system which give the home owner just the degree of comfort which he finds best suited to his requirements

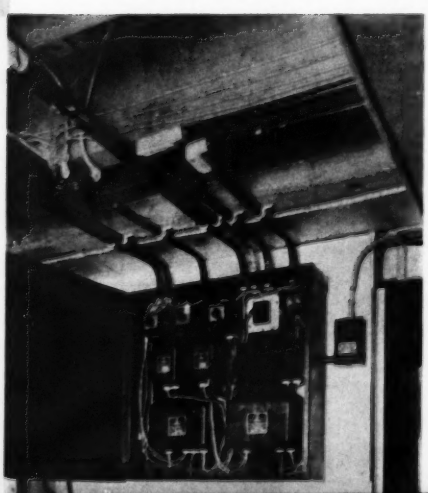


Fig. 3—At the right is a view of more of the control equipment. While the system is designed for both summer and winter duty, and is made to maintain comfortable indoor conditions entirely without attention, modifications in the amount of control can be effected

A MODEL home, well within the medium price range for residences, was erected recently in York, Pennsylvania, and placed on exhibition, to demonstrate what modern science has made available to the real home-lover in convenience and comfort.

No small part of the comfort which the owner of this home and his guests will enjoy throughout the year will be contributed by the year 'round air conditioning installation.

The control instruments which regulate the operation of the system, consisting of a clock thermostat, two humidostats and a manual control panel, are conveniently, yet inconspicuously located on the wall at the foot of the stairway leading upward from the main hall. By means of this control panel—the brains of the air conditioning system—the owner can control the proportion of fresh air taken into the house; he can condition either the first or second floors, or both floors; he can turn on or off at will an air purifier, which ionizes the air; he can continue the operation of the system for as late as may be desired into the night; or he can leave the night operation of the air conditioning system entirely to the automatic clock-thermostat control.

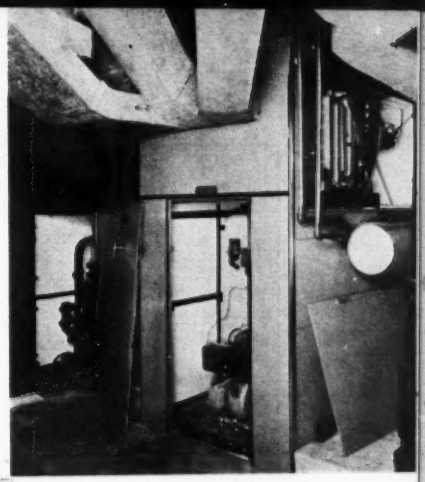
A duplicate control panel is placed on the second floor hall, with small red pilot lights which indicate the positions of all switches at all times. While the system is designed for both summer and winter duty, and will maintain comfortable indoor conditions entirely without attention, these control panels enable the owner to practice whatever economies he may desire in operating the system either for air cooling and dehumidifying in summer, or as a heating and humidifying system during the colder months of the year.

UNUSUAL CONDITIONS COVERED

Thus any unusual set of circumstances which might arise, such as the entertaining of a large number of guests at night, requiring longer operation of the system, are easily taken care of, either automatically or manually.

The arrangement and planning of air ducts

Air Conditioning Ease and Comfort



and supply grilles was given special attention. Wherever possible air ducts and grilles were designed to harmonize with the beautiful paneling of the walls. In the living room six supply grilles were ingeniously concealed within two longitudinal ceiling beams supported at the end toward the hall by two paneled columns. Air supply ducts are located inside these columns and beams, each beam having three small grilles to insure uniform distribution.

Fig. 4—Above is a view of the oil fired equipment. The doors have been removed to show the interior portions. When assembled, the job presents a very attractive and finished appearance.

Fig. 5—Left; view of the living room which shows how the arrangement and planning of the air ducts and supply grilles was worked out. Note grille in beam at upper right

DUCTS IN COLUMNS

Return grilles are located on the risers of the main stairway, were finished to match perfectly the oak woodwork. The main duct supplying air to the second floor are carried upward through the large living room columns to the unfinished third floor, where the supply is carried downward to the four bedrooms. In all bedrooms, including the master bedroom, the same artistic planning of supply grilles is carried out. The point of entrance for the conditioned air into the bedrooms is near the ceiling, while separate air return grilles are located near the baseboards, thus permitting ample circulation of fresh conditioned air. As in the first floor rooms, this careful planning of grille and duct work interferes in no way with the placing of furniture.

Fig. 6—The bedroom view at the right shows a grille in the wall slightly above and to the right of the door. This is the supply air duct. Separate air return grilles were located near the baseboards with the idea of permitting ample circulation of conditioned air. One feature was to avoid interference with furniture as far as the supply and return openings in walls were concerned

The mechanical plant of the air conditioning system is contained in two decorative gray, chromium trimmed, housings located in the basement. This plant comprises a year 'round central forced circulation air conditioner, in the larger housing, above the boiler and the oil burner. This air conditioner contains the air filter, and the fresh air regulating damper, the cooling and heating coils, the reheat coil for summer use; humidifying sprays and a seven-speed air circulating fan. All refrigerant, steam and water regulating valves also are located within this housing. In the smaller of the two housings is a compressor and condenser, equipped with automatic starting and regulating devices, high pressure and overload protection and a low pressure cutout. Air flow to the first and second floors is controlled also by manual switches which operate damper motors.

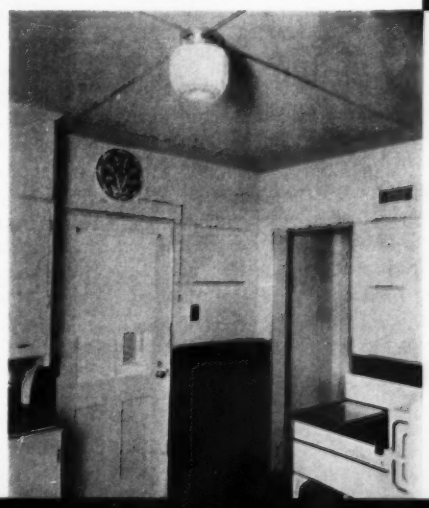


Fig. 7—Further indications of the methods used in locating air openings are shown in the view at the left which happened to be taken in the kitchen. Cooking odors introduce features in the air conditioning of kitchens which must be made adequate in design

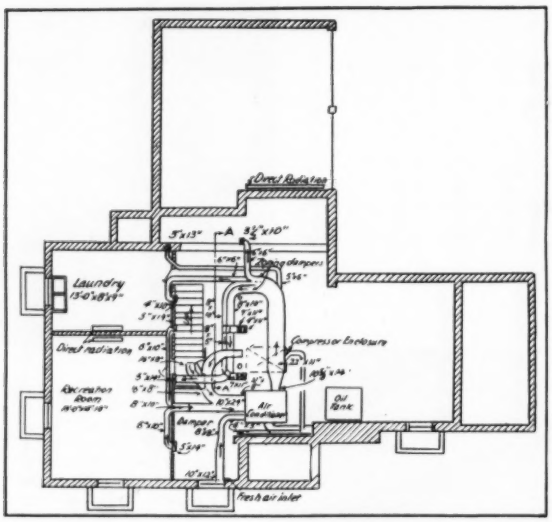


Fig. 8—Basement floor plan indicates layout of ducts and equipment

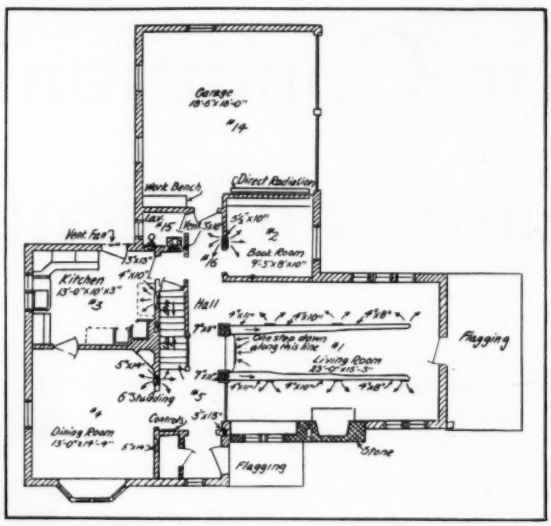


Fig. 9—Here is the first floor plan with the register sizes shown

These motors are equipped with auxiliary switches, so arranged that if both first and second floor zones are shut off, the system does not operate, save to supply hot water for the laundry, the kitchen and the bathrooms. When either the first or second floor zones are open, the bathrooms are supplied with conditioned air.

Thus the outstanding features designed for in this system are ease and simplicity of control, flexibility of operation, and safety.

(Continued on Page 104)

Oil Burner Rules are Guide to Better Installations

"Regulations any reputable concern must subscribe to."

Regulations of the National Board of Fire Underwriters

IN the last issue, we published the first part of these regulations. The idea is that oil burner contractor-dealers will find in these rules broad specifications which they can apply in making better installations. The following concludes this material.

16. Piping. (a) All piping shall be standard full weight wrought iron, steel or brass pipe with standard fittings or approved brass or copper tubing with approved fittings, except that approved flexible metal hose may be used for reducing the effects of jarring or where rigid connections are impracticable.

(b) Pipe used in the installation of domestic type burners shall not be smaller than ¼ in. iron pipe size; pipe used in the installation of industrial type burners shall not be smaller than ½ in. iron pipe size. Copper or brass tubing shall not be smaller in size than the equivalent of the iron pipe sizes mentioned above, with wall thickness not less than 0.049 in. Flexible metal hose shall be installed strictly in accordance with the limitations of its approval.

(c) Piping shall be rigidly secured in place and protected from injury in a workmanlike manner, and where necessary, shall be protected against corrosion. Where practicable, oil piping shall be buried underground or in a concrete floor or placed in a metal-covered pipe trench. Oil piping preferably should not be located close to other piping or in the same trench with other piping.

(d) Pipe joints and connections shall be made tight in a workmanlike manner. Unions and tubing fittings shall be of approved type. Unions requiring gaskets or packing, and right and left couplings shall not be used in oil lines.

(e) Proper allowance shall be made for expansion, contraction, jarring and vibration. Pipe lines, other than tubing, connected to underground tanks, except fill lines and test wells, shall be provided with double

swing joints arranged to permit the tank to settle without impairing the efficiency of the pipe connections.

(f) Where storage tanks are set below the level of the burner the oil piping should preferably be so laid as to pitch toward the storage tank without traps.

(g) Openings for pipes through outside walls below the ground level shall be made oil tight by securely packing with flexible material.

(h) Oil supply lines to burners shall be provided with approved strainers.

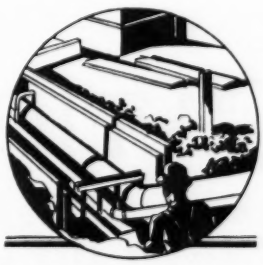
NOTE. Where oil burners are fed by oil pumps drawing from supply tanks of considerable size located some distance above the level of the burner, the installation of an approved anti-siphoning device at the highest point in the suction line is recommended.

17. Valves. (a) Readily accessible shut-off valves of approved type shall be installed in oil supply lines near each burner and close to gravity and pressure supply tanks. Shut-off valves of approved type shall be installed on each side of oil strainers which are not a part of the oil burner unit, and on the discharge and suction side of oil pumps which pump directly to the burner but which are not a part of the burner unit.

(b) Where a shut-off valve is installed in the discharge line of an oil pump, an approved pressure relief valve shall be connected into the discharge line between the pump and the shut-off valve and arranged to return surplus oil to the storage tank or to bypass it around the pump.

NOTE: It is recommended that approved automatically operated valves designed to shut off the oil supply in case of fire in the immediate vicinity of the burner, or to shut off the oil supply in case of breakage of the oil supply piping, be installed where burners are not equipped with approved automatic devices for preventing abnormal discharge of oil at the burner (i. e., industrial type burners).

(c) Control valves shall be of approved type provided with stuffing box of liberal size, containing a removable cupped gland designed to compress the packing against the valve stem and arranged so as to facilitate removal. Valve shall be designed to close against the supply, and to prevent withdrawal of stem by continued operation of the handwheel. Packing affected by the oil or by heat shall not be used.



18. Preheating of Oil, where necessary, shall be done by steam, hot water approved electric heaters. Heaters shall be substantially constructed with all joints made oil tight. Thermometers shall be installed at suitable locations to indicate the temperature of the heated oil.

Heaters shall be by-passed or provided with suitable means to prevent abnormal pressure.

19. Tests of Tanks and Piping. After installation and before being covered tanks and piping shall be tested hydrostatically, or with equivalent air pressure, at a pressure not less than 1½ times the maximum working pressure but not less than 5 lb. per sq. in. at the highest point of the system. Instead of a pressure test, suction lines may be tested under a vacuum of not less than 20 in. of mercury.

Tests should continue for at least 30 minutes without a noticeable drop in pressure or vacuum.

20. Oil Burner Controls. (a) Oil burning equipments shall be provided with some means for manually stopping the flow of oil to the burner, from a conveniently located point at a safe distance from the burner. With electrically driven equipment this may be accomplished by a switch in the motor supply circuit, placed near the entrance to the room where the burner is located. A quick-closing valve in the oil supply line, preferably located outside the building, may also be used in oil burner installations of this type.

(b) Automatically operated oil burners used in connection with hot water, steam or warm air heating systems shall be equipped with approved automatic devices to shut down the burner in the event of undue pressure in a steam boiler or overheating within a hot water boiler or warm air furnace.

NOTE. It is recommended that oil burners used in connection with steam heating systems be equipped with approved automatic devices for shutting down the burner in the event of low water in the boiler. The device should require manual resetting or it should prevent operation until the safe water level is resumed.

(c) Limiting controls and low water shut offs intended to disconnect the burner from the electric power supply should be connected into the burner supply circuit on the supply side of all other burner circuits.

(d) In systems where either steam or air is used for atomizing the oil, the oil and atomizing supply shall be interlocked in an approved manner so that in case of interruption of the atomizing supply, the oil supply will be immediately shut off.

21. Electric Wiring and Equipment in connection with oil burning equipments shall be installed in accordance with the National Electrical Code.

22. Installation of the Burner. (a) Oil burners shall be securely installed in a workmanlike manner, in accordance with the instructions of the manufacturer, by qualified mechanics experienced in making such installations.

(b) Where oil burners are installed in furnaces originally designed for solid fuel, the ash door of the furnace should be removed or bottom ventilation otherwise provided to prevent the accumulation of vapors in the ash pit, unless the burner is of a type which mechanically purges the ash pit.

(c) Boilers and furnaces in which oil burners are installed shall be connected to flues having sufficient draft at all times to assure safe operation of the burner. Smoke pipe dampers, if any, shall be such

(Continued on Page 105)

TROUBLE

Extreme weather conditions bring out hidden weaknesses in heating systems which may not be apparent during the normal operation of the equipment.

Omaha, Neb., Dec. 2, 1934.

DEAR MR. DAVIS:

I received your telegram asking me to see what could be done about the Grace Ave. Church, of Erie, Neb., so I stopped there last night. This morning I called on Mr. Henry Roberts, who told me that they have had two severe cold spells and that both times several of the radiators in the church froze. Fortunately the only damage done was to the architect's disposition.

Although Mr. Roberts was very positive in his statement that he had installed the entire two pipe vapor system exactly according to our plans, I found when I arrived at the job that all of the supply valves were installed at the tops of the radiators. When I called the contractor's attention to this, he explained that our plans called for the valves to be at the bottom of the radiators, but as it made no real difference, he had installed them at the top so that they could be operated more conveniently. In that point of view he was mistaken, I assured him, for the reason for our always showing supply valves at the bottom of the radiators in church installations was for the definite purpose of minimizing freezing. He promised to move the supply valves immediately.

As the oversized drip traps at the ends of the mains were properly installed, I believe there will be no further difficulty about freezing after the valves have been moved.

Very truly yours,

A. J. FLETCHER.

Erie, Neb., Dec. 19, 1934.

DEAR MR. RICE:

When your Mr. Fletcher advised me to move the supply valves to the bottom of the radiators on the Grace Ave. Church, I did it, not because I really believed it would help the situation, but because I was willing to do almost anything to get that job cleaned up. However, since I moved the valves we have had extremely cold weather and not a radiator has frozen. Today I received a letter from the architect stating that the system is now satisfactory and enclosing my final payment. I want to thank you for your cooperation.

Yours truly,

HENRY ROBERTS.

EXPLANATION

The heating contractor made the suggested changes not because he thought they would help matters but because he was willing to do anything as a last resort. They worked!

Most churches are heated only two or three days a week in the winter. The Grace Ave. Church had been heated on cold Sundays, but after the Sunday evening services the janitor had either banked his fire or let it burn out. The steam pressure dropped until the boiler was only generating a slight vapor which was reaching most of the radiators. At the same time the temperature in the church also was dropping, probably so fast that the church was below freezing before the boiler stopped generating a light vapor, creating a condition where the radiator was surrounded by air below 32 deg. Fahr. and were being supplied with very light vapor. This condition probably occurred every time the fire went out in cold weather.

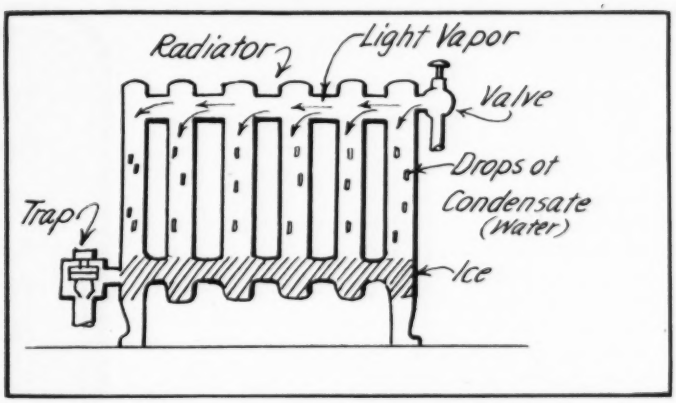


Fig. 1—This illustration indicates how the radiator connections were made and shows why the water of condensation collected and froze in the bottom of the radiator

Since the supply valve was at the top of the radiator the light vapor spread across the top and condensed, as shown in Fig. 1. As the water of condensation ran down the cold metal, it cooled and when the room was cold enough, the water froze and blocked up the bottom of the radiator. When the boiler generated vapor long enough, the whole radiator was filled with ice.

After the supply valve was moved to the bottom, the vapor spread across the bottom, as shown in Fig. 2. There it condensed, or else it condensed on the sides of the radiator, but in either case, the water was warmed by the incoming vapor. Consequently it is not likely that a radiator with the supply valve at the bottom will ever freeze.

Under the most severe conditions, the far end of the radiator might freeze, but if this should happen the water of condensation could still flow out through the supply valve as it does on a one pipe system. Such a radiator will never freeze solidly.

Because there is a possibility that the radiators might operate as one pipe radiators with the water of condensation flowing back into the supply main, the mains should be drained by oversize traps.

So far in this discussion, only the condition which occurs when the fire goes out has been discussed. A similar but more severe condition obtains when the fires are started in cold weather because the radiators are below freezing and the first steam generated by the boiler is a very light vapor by the time it reaches the radiators. If this vapor enters the top of a radiator, the water of condensation will freeze in the bottom of the radiator. If the vapor enters the bottom, the entering vapor keeps the vapor from freezing, as shown in Fig. 2.

For these reasons it is good practice when designing a church system or a system for any infrequently heated building, to install the supply valves at the bottom of the radiators and to use oversize drip traps on the ends of the mains. To keep the condensation draining through the radiator trap under normal conditions, eccentric bushings should be used on both ends of the radiator with the opening on the return end turned down and the opening on the supply end turned up.

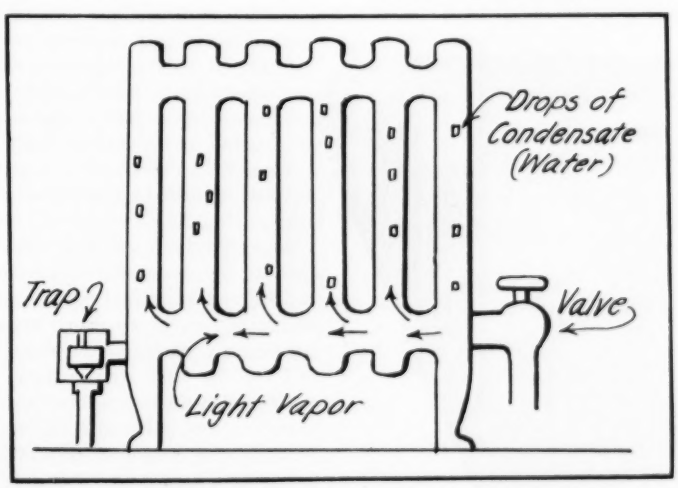


Fig. 2—Here are the connections which were suggested as the remedy for the trouble. Note that the condensate can drain back into the supply, even if the trap is closed or stopped, just as long as any vapor is being supplied

"We are finding conditioning more and more know of any this from which man might obtical and helpful Mr. Alt's series which this is the designed to give ance asked for in quiry coming

Problem Air Condition

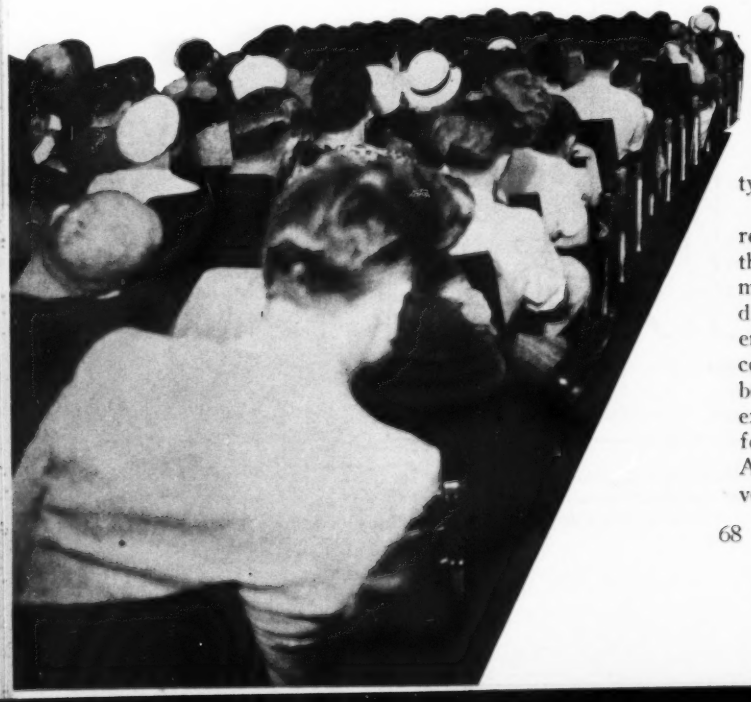
By Harold L. Alt

THE sun shining on the side or roof of a building adds to the amount of heat to be removed over and above that shown by a calculation based simply on the temperature differences and transmissions of the roof, walls and glass and multiplied by such temperature differences. Owing to the fact that the sun travels in respect to the building never being twice alike on the same day or at any two times in the day, the estimating of the amount of additional heat received from such a source involves difficulties. When comfort cooling was first developed for theater work little if any consideration was given to this subject for the reasons:

a. That the theaters had no outside windows through which the sun could enter.
b. The roofs almost invariable had hung ceilings below, with considerable distance between the hung ceiling and the roof so that a comparatively large cubage had to be warmed by the sun before its effects were felt in the building.

This made it entirely practical to ignore sun effect on this type of building and there probably are very few theaters in the country where sun effect received the slightest consideration in the calculation of the cooling load.

The sun effect in cooling work is the term given to the additional heat received on clear days from the sun and has no counterpart in heating work as temperatures must be maintained in heating whether the sun is shining or not. There is no doubt that the load on the heating system on a clear, sunny winter day is somewhat reduced but, as the sun cannot be depended on to shine every day and certainly not at night, it is not practical to attempt any reduction in the heating plant installation on this account. In cooling, however, the sun effect is just in the opposite direction—that is, it adds to the cooling load instead of reducing it—and it is also likely to occur on the hottest days, so that it must be considered to some extent in certain types of buildings.



Sun effect through the roof may be computed theoretically by taking the highest temperature produced on the roof and subtracting from it the temperature to be maintained inside in order to ascertain the temperature difference and then multiplying this temperature difference by the heat transmission co-efficient for the roof construction including the air space and hung ceiling below, if any. In climates approximating Detroit, for example, the temperature reached on the roof has been found to approximate 160 deg. Fahr. to 170 deg. Fahr. Actually, however, the sun effect on the roof will be very materially less than that shown by these theoretical

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is How to Small Movie

figures because it takes a certain amount of time for the heat to penetrate through the roof construction and set up the state of heat flow due to a fixed set of conditions; added to this is the fact that, while such high roof temperatures may be set up around noon when the sun is shining almost directly down on the roof, in the morning and afternoon the rays are received on a much greater angle and lose much of their intensity.

If the roof is of light construction probably it is safe to consider a maximum effect in the building at any time or not over 50 per cent of that shown by the theoretical calculation and if the roof is of heavy fireproof construction and has a hung ceiling and air space below this may safely be cut to 25 per cent or perhaps neglected altogether.

The walls offer similar conditions except that they are vertical and are subject to a greater sun effect in the morning and evening owing to their being more nearly perpendicular to the sun's rays at these times and receiving a greater amount of heat than even the south wall does at noon. The reason for this is that the sun's rays on the south wall are at a sharp angle horizontally with the south wall in the morning and evening and at a similar sharp angle vertically at noon.

The sun effect on glass is much more serious as the glass passes over 90 per cent of the heat through into the room and this heat impinges on various surfaces raising the temperature thereof so as to produce heat in the room which heat must be removed by the cooling system if the room temperature is to be maintained. The effect of this heat is almost immediate, requiring no appreciable time to pass through the glass, as is the case in the walls and roof, and therefore the heat production through the glass not only is more intense but also is more immediate and therefore lasts longer than in the case of the walls and roof. It has been estimated that in some cases the sun effect constitutes as much as 50 per cent to 75 per cent of the entire cooling load so it will be seen that for windows in buildings, where sun effect is to be encountered, it is highly important that some allowance be made for this additional heat production.

When it comes to the matter of how much to allow for sun effect there is considerable difference of opinion largely due to insufficient research work having been carried along this line and where such work has been done the results are only dependable for similar latitude, equal clearness of atmosphere, and so on. One rule of thumb is to increase the outside temperature 25 deg. Fahr. in calculating all walls, roof and glass exposed to sun effect for any considerable period of time. This is rather arbitrary and provides no allowance for differences in exposure nor where the surfaces are vertical and horizontal. Moreover, it seems to be somewhat short in allowance when compared to the tests actually made on walls and glass. One authority states that in the vicinity of Detroit the use of 3 Btu. for walls

and 17 Btu. for glass is adequate in cooling calculations for office buildings and, where sun effect is expected, the glass is raised or increased to 140 Btu. on the south side and 160 Btu. on the east and west sides.

This would indicate a 1.1 coefficient for glass with a temperature difference of 15 degrees between the inside and outside without considering the sun effect and would make the ordinary wall coefficient 3/15 or 0.20 Btu. per sq. ft. per degree. If the outside temperature were

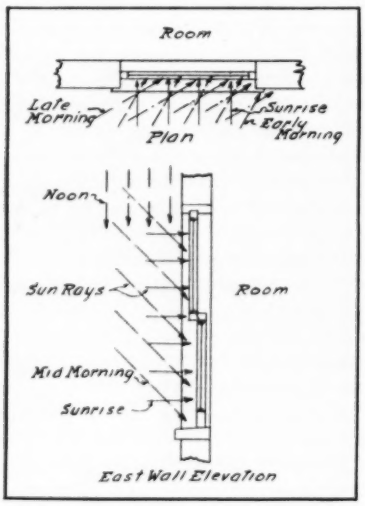


Fig. 1—This drawing indicates a plan and elevation of an east wall window and the angle of the sun's rays at different times during the day

considered as raised 25 degrees to allow for sun effect this would make the addition to the wall factor 0.20 × 25 which is 5 Btu. and the glass factor 1.1 × 25 which is 27.5 Btu. If there is approximately 4 sq. ft. of wall to every sq. ft. of window this would make an addition to the window factor of 4 × (5—3) or 8 Btu. additional. Then 27.5 Btu. plus 8 Btu. equals 35.5 Btu. the total addition for sun effect on every sq. ft. of glass. The test shows, however, that the addition for sun effect on glass should be 140 Btu. minus 17 Btu. or 123 Btu. on the south side and 160 Btu. minus 17 Btu. or 143 Btu. on the east and west sides.

ADDITIONS FOR EXPOSURE

Exposure	Wall	*Glass
North	No Addition	No Addition
South	No Addition	Add 40 Btu. per sq. ft.
East	No Addition	Add 50 Btu. per sq. ft.
West	No Addition	Add 50 Btu. per sq. ft.
Roof (Flat)	Add 10 Btu. per sq. ft. of roof	Add 35 Btu. per sq. ft.

*Note that the glass surface considered in calculating sun effect is the effective glass actually exposed to the sun's rays and does **not** include glass in the **shade** of lintels, cornices, walls or from any other cause.

Another authority gives the heat flow for single glass as 119 Btu. per hour per square foot maximum for south wall exposure, and 187 Btu. per hour on east and west wall exposure glass while glass on a horizontal plane such as in the tops of skylights will transmit a maximum of 251 Btu.

It now becomes necessary to develop a rational and practical method of allowing for sun effect which may be handled in heat transmission calculations with due allowance for time exposed to the sun, angle of sun's rays, etc. For this purpose the tabulation at the lower left is offered in lieu of more concise and accurate data still to be developed.

It will be seen from the table that it is considered the exposure of the east and west walls to the sun is of such short duration that little if any heat will be transmitted through the *wall* to the inside before the sun's rays have become so angular as to materially reduce the wall temperature from the maximum obtained by test; also that the lag in the heat penetrating the roof is such that the actual increase in transmission which would be felt in the room below would not be much in excess of a constant increase in the outside temperature of about 30 degrees over the actual temperature.

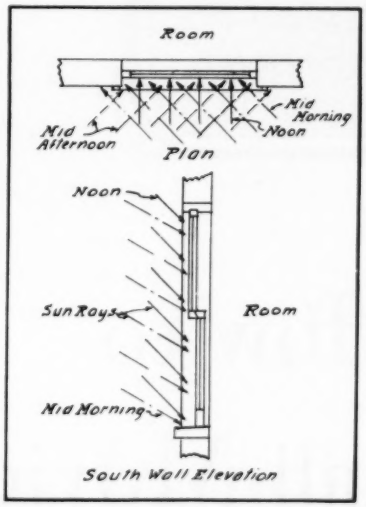
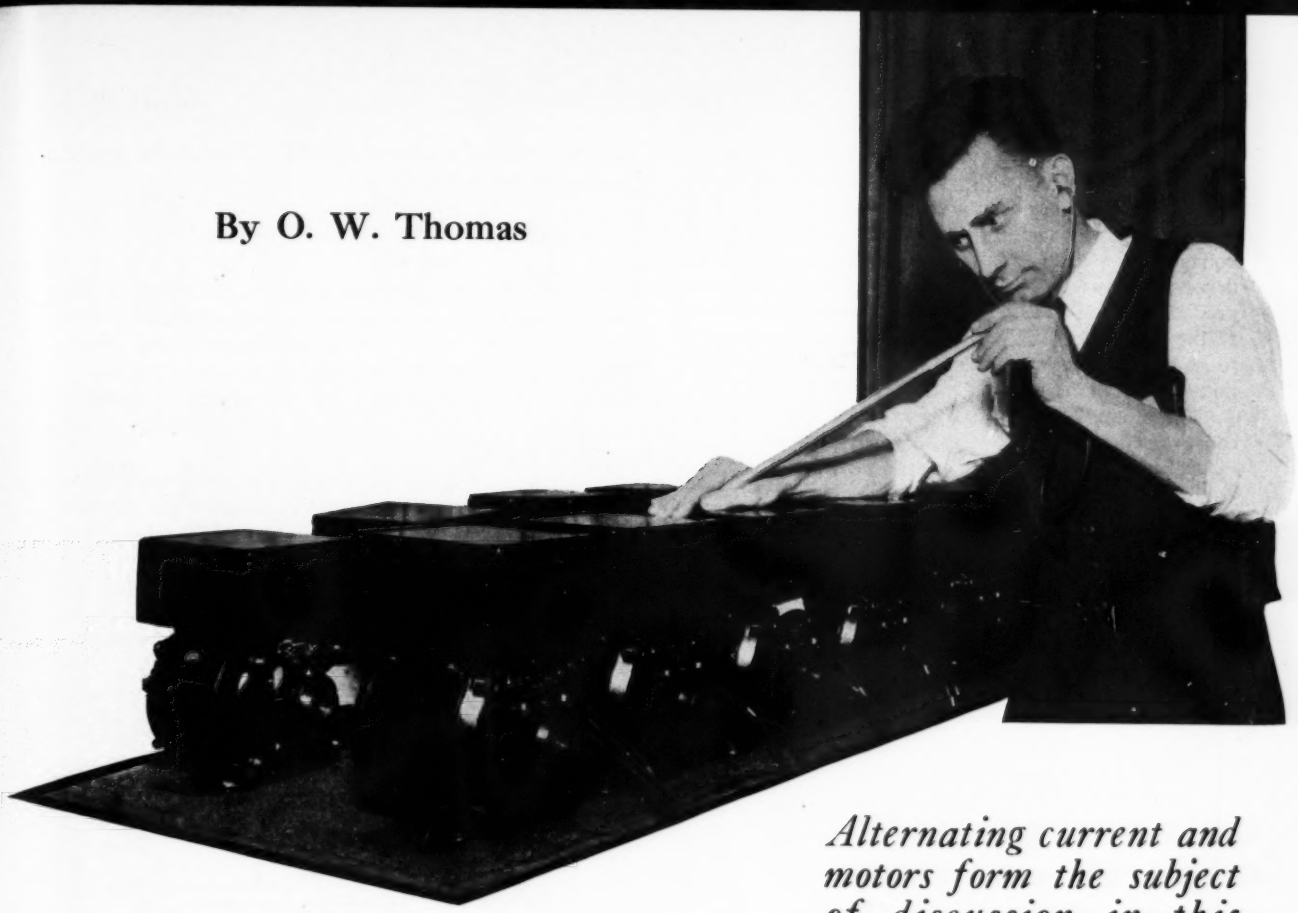


Fig. 2—This illustrates the conditions occurring with a window in the south wall of a building, as far as the sun's rays are concerned

Certain deductions must be made in considering sun effect. For example, all of the window glass may not be admitting sun at any one time or, if it does, it may be for a comparatively short time only. Thus in Fig. 1 which indicates a plan and elevation of an east wall window it will be seen that when the sun is on the horizon all of the glass will be transmitting the horizontal sun rays but as the run rises these rays become angular and in a few hours reach 45 degrees. As this full area of window is in the sun only at sunrise, usually it is at a time when the building is unoccupied and the outside temperature is not at the maximum. The same thing is true of the west windows at sundown. Fig. 2 illustrates the conditions occurring with a window in the south wall where the sun's rays in the morning come at an angle from the right, at noon from an angle from above, and in the evening at an angle from the left.

(Continued on Page 100)

By O. W. Thomas



Alternating current and motors form the subject of discussion in this very practical article

Pointers on Electricity for the A. H. and A. C. Dealer

ARTICLE NO. 4

WE feel that one of the most sincere compliments which can be paid to us in connection with the publishing of these articles comes from a reader in Newark, New Jersey. He asks if there is any way in which he could get a dozen copies of the complete series and says, "I am very anxious to get the whole article rather than wait for the additional issues." He points out that the reason for his interest in this information is that he is getting into the oil burner equipment business and that these articles seem to be the clearest he has been able to find on the subject of electricity.

Mr. Thomas' discussion with his friend, Mr. Lucas, continues.

"In direct current there are only three factors that affect the circuit: the voltage (E), the current (I) and the resistance (R). With direct current no other factors have any bearing on the circuit. The power is measured in watts (W) and is equal to E $\times$ I.

"In alternating current circuits other factors enter in. If a coil of wire is placed in an alternating current circuit, it will be found that this coil causes the current to lag behind the voltage because the coil has inductance. The current and voltage are not in step, and the product of (E) and (I) (the apparent power) does not equal the true power in watts (W) as read by a wattmeter. This inductance is caused by the alternating magnetism around the coil which has a tendency to hold the current back and to make it lag behind the voltage. As previously explained, a condenser has just the opposite effect and will cause the current to lead the voltage.

"The ratio of the true power, as read by the wattmeter, to the product of (E) $\times$ (I) or the apparent power, is called the power factor. Thus, P. F. $= \frac{W}{E\,I}$ for any single phase circuit. The power factor is always I or less. It cannot be more than one.

"In the case of a circuit having only an inductance and

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resistance, the circuit is said to have a lagging power factor, because the current lags the voltage. If only a condenser and resistance are used, the circuit is said to have a leading power factor, because the current leads the voltage. If a circuit has both an inductance and a condenser the power factor will be lagging if the inductance predominates, and leading if the condenser predominates. If the inductance and condenser are so proportioned as to counteract one another, the power factor is one or unity and the true power then equals (E) × (I).

"The power factor of a D. C. circuit is always 1 because the current must always be in step with the voltage.

"Because of the effect of power factor, the power in any simple, two wire, single phase, alternating circuit, or in any single phase of a polyphase circuit, is given by the following relation:

$$W = (P.\ F.) \times E \times I.$$

"It is difficult to measure directly the power factor of a circuit, though it is possible with a power factor meter.

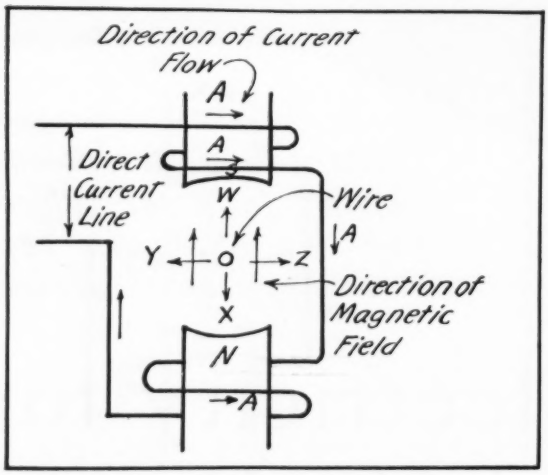

Fig. 1—"Suppose the wire shown here is moved in direction W. When this is done the wire does not move through or across the magnetic field so no current is generated in the wire."

The more usual way is to measure (W), (E) and (I) and figure the power factor. If the wattmeter reads 105 watts, the ammeter reads 1 amp. and the voltmeter reads 110 volts, the power factor is found as follows:

$$P.\ F. = \frac{W}{E \times I} = \frac{105}{110 \times 1} = 0.95 \text{ or } 95 \text{ per cent.}$$

"Let me see if I can work out a problem. I have a ¼ h. p. single phase motor. I remember that the name plate says the current is 2½ amperes and the voltage is 110. I believe it is a condenser motor. How many watts would it draw?"

"About 250, I'd say."

"All right. Then W = 250, E = 110, and I = 2.5. Accordingly, the power factor is: $P.\ F. = \frac{250}{275} = .91$. Is that right?"

"Just about, for a good condenser motor. If this was a split phase motor, the watts would still be about 250, but the amperes would be about 3. What is the power factor for this motor?"

"It would be $\frac{250}{330} = .76$ or 76 per cent."

"Now I see why you said a circuit lost power if the current lagged, due to inductance. Both of these ¼ h. p. motors use 250 watts but the condenser motor draws 2½ amperes whereas the split phase motor draws 3 amperes, putting that much more of a load on the generators and the wires. I suppose that makes the losses that much greater."

"Exactly. Now let us discuss the characteristics of current. The voltage, frequency (cycles), the number of phases, and whether it is A. C. or D. C., determine the characteristics of any current.

"For D. C. service it is necessary only to give the voltage and to state that it is direct current. For A. C. service it is necessary to know the voltage, the frequency, and the number of phases. If three wire, D. C., or three wire, single phase A. C. service is used, it is necessary also to know on which voltage the motors will be used.

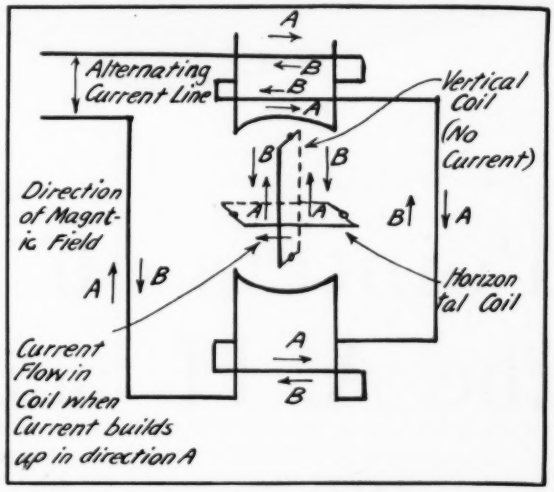

Fig. 2—"If the coil is in the vertical position and is rotated in clockwise direction then both wires will cut across the magnetic field and current will be induced in them."

"Before we start a discussion of alternating current motors, it might be wise to discuss the important principles involved.

"I believe I told you some time ago that if a wire carries a current through a magnetic field, it is pulled in one direction. Now I want to state that the opposite also is true."

"Meaning that if a wire is moved through a magnetic field a current will flow in the wire?"

"That's it, but the wire must be moved through or across the magnetic field. Perhaps I would make this more clear by making a sketch. Suppose the wire shown in Fig. 1 is moved in direction W. When this is done, the wire does not move through or across the magnetic field, so no current is generated in the wire. Likewise,

no current is generated when the wire is moved in direction X. However, if the wire is moved in direction Y, a current is generated or induced in the wire which flows down through the paper, and if the wire is moved in direction Z, the induced current flows up through the paper."

"I see."

"Now if the wire remains stationary, and the current is shut off of the field windings, the magnetic field dies out and a current will be induced in the wire because the magnetic field moves away from the wire which is just the same as moving the wire. This induced current stops as soon as the magnetic field is gone. In a similar manner, a momentary current is induced when current is again applied to the field windings."

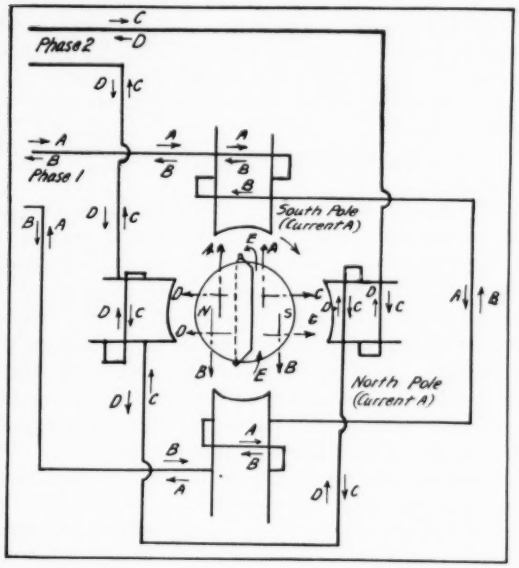

Fig. 3—"We have here a condition in which the wire is standing still but the field is moving which is exactly the same as having the field stand still with the wire moving."

"Then I suppose if the field windings are connected to an alternating current line, an alternating current will be generated in the wire."

"You're right. Let's suppose that we place a coil of wire between the two field poles (See Fig. 2) in a vertical position and connect the field windings to an alternating current line. What happens? The magnetic field is built up, then dies down, and is built up in the other direction. As a result, an alternating current is induced in the upper and lower halves of the coil, but these currents oppose one another, so no current flows.

"When the coil is in a horizonal position, the field builds up in direction A, from the left side of the right wire, so the induced current would flow up through the paper. Likewise, it builds up from the right side of the left wire, so the induced current in this wire flows down through the paper. Both of these currents flow in the same direction so an alternating current flows in the coil."

"That must be the way a transformer works."

"It is. Now consider what happens when we rotate the coil shown in Fig. 2. Let us assume that the current in the field coils is flowing in direction A, which means that the magnetic field flows upward. If the coil is in the vertical position and is rotated in clockwise direction (the upper wire moving to the right and the lower one to the left) then both wires will cut across the magnetic field and current will be induced in them. The induced current in the upper wire will flow up through the paper while the induced current in the lower wire will flow down through the paper. Consequently an induced current will flow through the coil."

"What happens when the coil is moving through the horizontal position?"

"In that case, the wires are moving in the same direction as the magnetic field, so no current is generated. These principles I have just stated are very important because they are the ones on which all induction motors operate.

"Now we come to the subject of the simple two phase induction motor. I suppose you recall what a two phase current is?"

"I think so. It is two single phase currents each carried by two wires, with the current in one phase 90 electrical degrees, or ¼ of a cycle, ahead of the other, isn't it?"

WHAT IS A TWO PHASE MOTOR?

"Yes. Because the current in one phase is ¼ of a cycle ahead of the other, in a two phase motor we would place the poles ¼ of a circle or 90 degrees apart, as shown in Fig. 3. We will assume that the current in phase 2 is ¼ of a cycle behind the current in phase 1. When the current in phase 1 is a maximum in direction A, then the current in phase 2 is not flowing at all, and the magnetic field flows in direction A. One-quarter of a cycle later, the current in phase 1 is 0 and the current in phase 2 is flowing in direction C, so the magnetic field flows in direction C. One-half of a cycle after the start, the current in phase 2 is 0, the current in phase 1 is flowing in direction B and the magnetic field flows in direction B. Three-quarters of a cycle after the start the current in phase 1 is 0, the current in phase 2 is flowing in direction D and the magnetic field flows in direction D. One full cycle after the start, the current in phase 2 is again 0, the current in phase 1 again flows in direction A, and the magnetic field flows in direction A."

"Then in a two phase motor, the magnetic field jumps from direction A to direction C to direction D and back to direction A?"

"Yes, except that instead of jumping it flows smoothly. In other words we have a revolving field or a revolving field magnet in a two phase motor."

"But what happens to the coil of wire around the armature?"

"Assuming that the coil of wire is in the vertical position shown in Fig. 3 and that the direction of the magnetic field is revolving from direction A to direction C. Then we have a condition in which the wire is standing still but the field is moving, which is exactly the same as having the field stand still with the wire moving. In either case, a current will flow in the wire. In the case of the upper wire, the field moves to the right which means that the current will flow down through the cur-

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rent in direction E. The field around the lower wire moves to the left, so the current will flow up through the paper, which is also in direction E. Therefore as the field revolves from direction A to direction C, a current is induced or generated in the armature coil. When this coil is in a vertical position, the electro-magnet produced by the armature coil forms a south pole S at the right, and a north pole N at the left. This electro-magnet tries to keep in step with the revolving field magnets, causing the armature to rotate in the same direction and at the same speed as the revolving field magnet.

"In other words, if I understand you, a current is induced in armature wires by the revolving field, which in turn produces an electro-magnet in the armature. This electro-magnet tries to keep up with the revolving field, making the armature revolve in the same direction as the field.

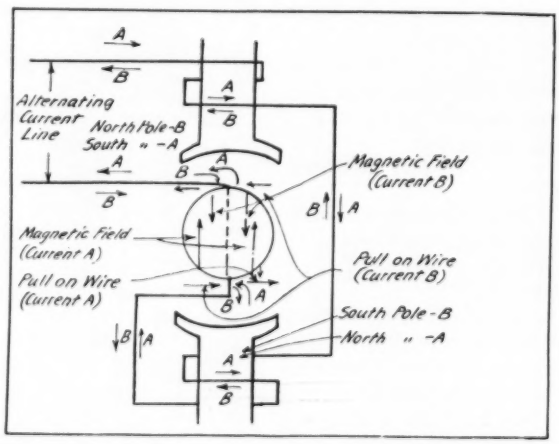


Fig. 4—"I'll draw you a sketch of a simple series motor connected to an alternating current line."

That is right. Now let us discuss three phase motors. A discussion of three phase motors leads us to recall the meaning of three phase current, which is three single phase currents, each carried by two wires, with the current in each phase 120 electrical degrees or ⅓ of a cycle ahead of or behind the current in the other two phases.

"A three phase motor is exactly the same as the two phase motor, except that it has another set of poles. It also has a revolving field and the armature, or rotor, follows the revolving field because of the current induced in the armature windings."

"But why did you start in on the subject of two or three phase motors before you say anything at all about single phase motors?"

"Because, contrary to your evident expectation, the two and three phase motors are the most simple. They are the most simple because both two and three phase motors produce revolving fields and are self starting.

"We have arrived, then, at the proper place to study single phase alternating current motors. The other evening I told you how a direct current motor operates, producing motion because a wire that carries current through a magnetic field is pulled in a certain direction. Do you recall?"

"Oh, yes. In the case of a direct current motor the magnetic field is produced by a coil of wire wound around steel poles; this is called the field winding. The wires which carry the current through the electric field are the armature windings and the current is conducted to the armature windings through the brushes and the commutator. The current always flows in the same direction, so the armature windings are always pulled in the same direction.

I wonder what would happen if we were to connect a regular series wound direct current motor to an alternating current line?"

"Let me think. In an alternating current line the current flow alternates from one direction to the other and back again, which means that the current would alternate in the armature windings. For this reason they would be pulled in one direction and then in the others alternately. I don't believe a series motor would run if you connected it to an alternating current line, Mr. Lucas."

SERIES MOTOR ON AN A C LINE

"But wouldn't the direction of the field also reverse?" This brings up a very important point, I said to my friend, "so I'll draw you a sketch of a simple series motor connected to an alternating current line, Fig. 4. When the current is flowing in direction A, then the lower pole is a north pole and the upper one is a south pole and the direction of the magnetic field is upward. Under these conditions the current in the lower armature wire flows down through the paper and the current in the upper armature wire flows up through the paper. With this condition, the lower armature wire is pulled to the right and the upper armature wire is pulled to the left. When the current flows in direction B, the upper pole is the north pole, the lower one is the south pole and the magnetic field flows downward. The current in the lower armature wire flows up through the paper and the current in the upper armature wire flows down through the paper. Since both the direction of the current and the direction of the magnetic field have been reversed, the lower wire is still pulled to the right and the upper wire to the left, so the motor would run—after a fashion."

"Then why don't they use series motors on alternating current?"

"They are used, but not extensively, and are called 'universal motors' because they may be used on either direct or alternating current. They are not used except when they must run on either current and even then they are not used in large sizes, because they are not as simplified nor as efficient as other types of alternating current or direct current motors. When they are running on alternating current they are inclined to spark excessively, wearing out the brushes and commutators very rapidly. This is the 'double acting' motor I told you about the other evening. You undoubtedly see the similarity between such a motor and a double acting water wheel."

"Yes, indeed. In a double acting water wheel the check valves keep the push on the blades of the wheel

(Continued on Page 96)

2—

Humidity

Humidity is the amount of moisture contained in air and may be expressed in "grains" or "pounds" of moisture per lb., or per cu. ft., of air. (Also termed "absolute humidity.")

Maximum amount of moisture which may be contained in air is determined by the temperature of the air.

Raising the air temperature increases the capacity of the air to carry moisture and lowering the temperature decreases it.

Saturated air is air containing the maximum amount of moisture which it can carry at its particular temperature.

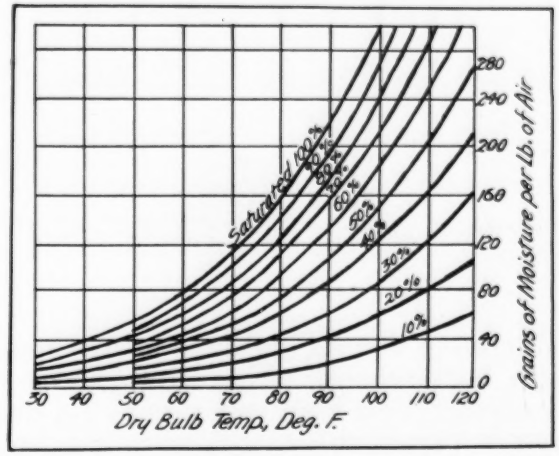
Relative humidity is the amount of moisture actually in the air compared with the maximum amount of moisture which the air could carry at the same temperature.

Relative humidity usually is expressed as a certain *per cent* of the maximum. *Dew point* is the temperature at which air is saturated or where a relative humidity of 100 per cent is obtained—see Sheet 3.

Published by Automatic Heat and Air Conditioning

3—

Psychrometric Chart



Note—Percentage curves above indicate Relative Humidity. Note 7,000 grains equal 1 lb.

Note—At 100 per cent Relative Humidity, the air is said to be "saturated" as it can carry no more moisture.

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At a recent meeting of automatic heat and air conditioning dealers, one who stood out was asked what he wanted most to know about the subject. His reply was that he wanted data which would enable him to answer his customers' questions

1—
Air Conditioning

Air Conditioning may be defined as any treatment of air to make it more suitable for some particular application.

Air Treatment usually consists of one or more of the following:

(a) Cleaning (by filtering, washing, etc.)
(b) Moisture control (by humidifying, etc.)
(c) Temperature control (by heating, etc.)

Cleansing is done with dry air filters, oil filters, or by washing with spray water.

Moisture addition is done by means of water sprays which saturate the air at some given temperature, or by means of evaporation; this is termed "humidifying."

Moisture reduction is done by cooling the air below the "dew point" so that part of the moisture is precipitated, or by means of adsorption; this is termed, "dehumidifying."

Heating is done by cast iron or extended fin copper tube surface heaters.....

Cooling of the air is done by refrigerated coils in the air flow, by refrigerated or cold spray water or by a combination of both.

Note—Well water at 50 deg. Fahr. or less often is used.

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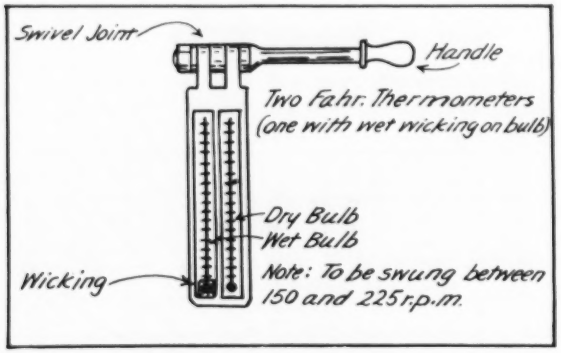
4—
Sling Psychrometer



The Sling Psychrometer is rotated rapidly by hand and, in so rotating, causes a drying effect (or evaporation) on the wet wicking; this evaporation requires the supplying of what is known as latent heat and this produces a cooling effect on the wet bulb.

With very dry air the evaporation is more rapid giving a lower wet bulb reading and *with damp air* the evaporation is retarded and a higher wet bulb temperature is recorded. *In saturated air* no evaporation can take place and both wet and dry bulb readings will be the same.

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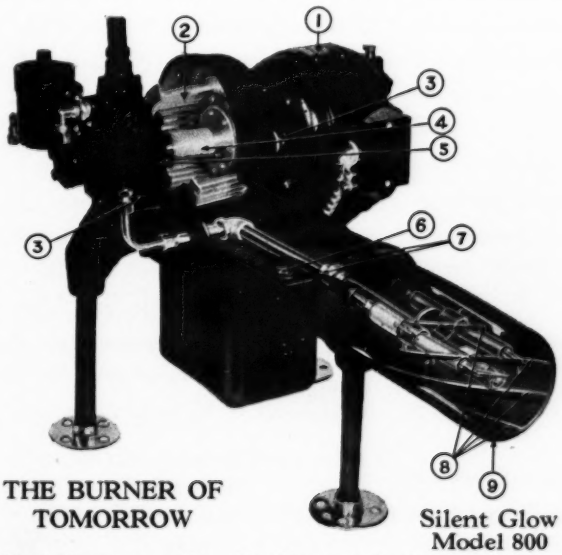
When A Prospect Says . .

"AW! I KNOW WHERE I CAN BUY A BURNER CHEAPER!"

What Can You Tell Him?

99 prospects out of a hundred throw a statement like that in your face. You can't ignore it. You can't meet every cheap price on the market (and make money).

But—today—you can tell a story that outweighs price. The story of Progressive Rotation. The fact that sales of Silent Glow dealers are up an average of 175%—that they are selling burners at a profit—is proof positive that Progressive Rotation makes prospects *value-conscious*—that it definitely enables you to lick cheap competition.



THE BURNER OF TOMORROW

Silent Glow Model 800

Flex-ile Drive (4) together with rubber motor housings (3) eliminates vibration.

Progressive Rotation, produced by rifled air tube (8) provides more efficient combustion with absolute quiet.

Radio interference eliminator, plus short (6 inch) high tension leads (7) prevents radio interference, while stream-lined terminals (6) further insure quietness.

Here, for example, are a few of the amazing features of Progressive Rotation. It is so quiet you can hear a watch tick when standing in front of the boiler with burner running full speed. It can hold a perfect flame, operated in the open, without constant ignition or the use of refractory materials. It delivers far more heat per gallon of oil.

What is the fundamental difference between Progressive Rotation and old-fashioned gun-type burners? Simply this. Instead of depending on noise-creating turbulators to mix air and oil, Progressive Rotation employs a rifled air-tube. This causes the air to be whirled along in smooth, rhythmic circles. When co-mingled with the atomized oil, the progressive rotating action of the air creates a clean, bushy flame that remains suspended without the use of constant ignition or combustion walls. Mail the coupon below for full facts.

SILENT GLOW
OIL BURNER CORPORATION

Factory: Hartford, Conn. Branches: Boston, Chicago

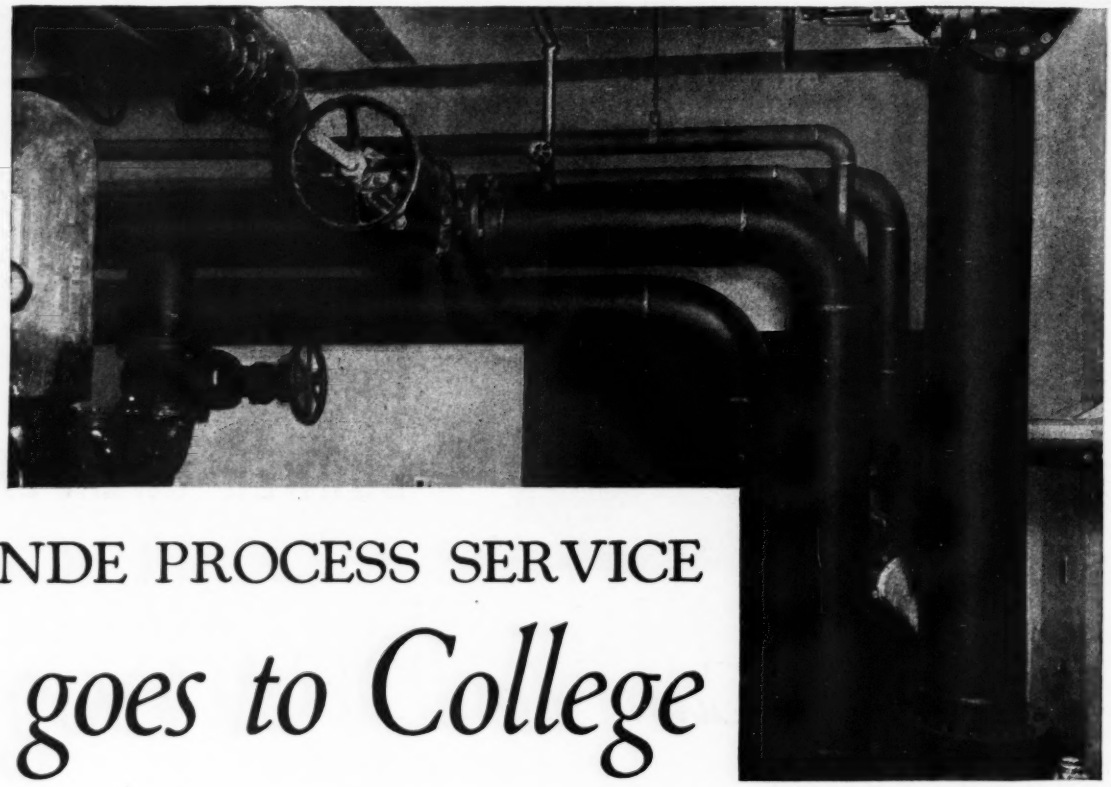
Silent Glow Oil Burner Corp.
Hartford, Conn., Dept. DE1

Please send me at once the complete story on Progressive Rotation.

Name .....

Street .....

City ..... State .....



LINDE PROCESS SERVICE *goes to College*

New Heating Plant Completely Oxwelded

PAST performance of oxy-acetylene welded steam piping . . . installed under supervision of Linde Process Service . . . made an extremely favorable impression on the authorities of a well-known mid-west university. A new building program called for an additional 43,000 sq. ft. of space to be heated requiring a new heating plant. Based on previous experience . . . and Linde cooperation . . . the decision was in favor of an oxwelded pipe installation.

Contracts called for about 8,000 feet of pipe, from 1 1/2 to 12 in. in diameter. A wide variety of pipe specials was necessary to combine many pieces of modern boiler plant equipment into an efficient working unit.

Linde engineers stayed with the job from start to finish, furnished helpful data, advised on the best procedures, and worked with officials of the university and contractors, to insure strong, leakproof, permanent joints. That is Linde Process Service. It makes available to every user of Linde Oxygen—at no extra cost—sound welding and cutting practices based on thousands of experiences in many industries. And the value of this unique service is further amplified by coordination with the vast resources, scientific research and engineering facilities of other Units of Union Carbide and Carbon Corporation.

The nearest Linde Sales Office will be glad to tell you about Linde Process Service. These are located in Atlanta—Baltimore, Birmingham, Boston, Buffalo, Butte—Chicago, Cleveland—Dallas, Denver, Detroit—El Paso—Houston—Indianapolis—Kansas City—Los Angeles—Memphis, Milwaukee, Minneapolis—New Orleans, New York—Philadelphia, Phoenix, Pittsburgh, Portland, Ore.—St. Louis, Salt Lake City, San Francisco, Seattle, Spokane and Tulsa. Everything for oxy-acetylene welding and cutting—including Linde Oxygen, Prest-O-Lite Acetylene, Union Carbide and Oxweld Apparatus and Supplies—is available from Linde through producing plants and warehouse stocks in all industrial centers.

THE LINDE AIR PRODUCTS COMPANY

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In Canada: Dominion Oxygen Co., Ltd., Toronto

YOU CAN ORDER EVERYTHING FOR OXWELDING AND CUTTING FROM LINDE

Automatic Heat and Air Conditioning Questions

HOW TO BUILD OIL COMBUSTION CHAMBER

To the Editor:

I should like to obtain a little information as to the proper way in which to build a combustion chamber to suit the following described boiler: the boiler is a horizontal, cast iron, sectional boiler, with the grates removed, leaving a combustion chamber approximately 20 in. by 30 in. by 31 in. high; water reaches to the bottom all around except at the ash pit door at the front and at the damper housing at the rear—now no longer used, as that is where the gun type burner is installed.

The uptake to the horizontal flues is directly above the burner and the burner was only located at this point, so as to be more out of the way and to allow the front of the boiler to be used for burning rubbish, etc. The flame as seen from the front is about 18 in. in diameter, of the shape of a sunflower and, if the brickwork is built up the height of this flame, it would keep more or less of the heat away from the water legs in the front and tend to drive the heat up the uptake above and into the flues. The flame now extends inward 10 in. to 12 in., at the outter edge and it would seem that, if the flame were smaller in diameter and longer, it would be much better.

Some of the old oil burners used to drive the flame through a tube of some 6 in. or 8 in. in diameter and 10 in. to 12 in. long and they made a very good fire but these tubes used to burn out and melt causing a lot of trouble. What do you think of using a heavy piece of chimney lining 8 in. to 10 in. in diameter and about a foot long, bricked in. How would you suggest to change the shape of the flame if the nozzle were drawn back in the air tube? Would it not be liable to strike the edge of the air tube and burn same?

Massachusetts. L. I. L.

To the Reader:

Many good oil burners are not giving proper service due to faulty settings and it is our opinion that every contractor who installs an oil burner should obtain, from the manufacturer of the particular burner installed, a dimensioned sketch of the setting recommended for the actual boiler under which the burner is to be located.

Primarily, the amount of combustion space is most important; an authority quotes 1 cu. ft. of combustion space to every 1½ to 2 lb. of oil burned per hour and the chart shown in Fig. 1 has been made up on this basis, the oil consumption of the burner in g.p.h. being shown on scale along the bottom and the maximum and minimum combustion space determining the cross hatched area reading on the vertical scale in the center of the chart. Thus a burner consuming 3 g.p.h. of oil would require between 12 to 15 cu. ft. of combustion space as indicated by the leader lines on the chart.

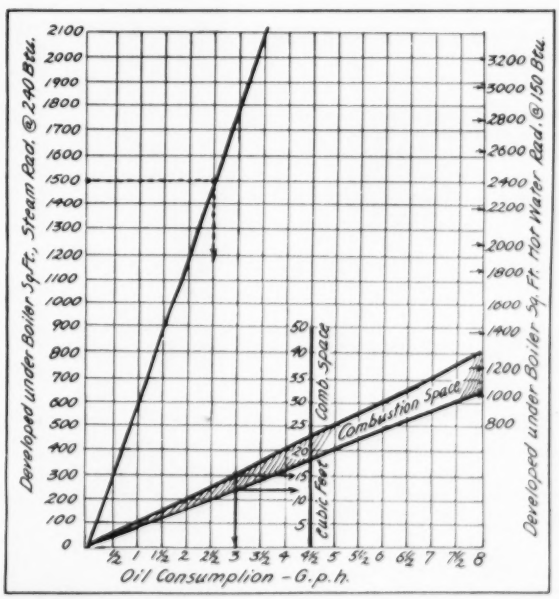
Developed under Boiler Sq. Ft., Steam Rad. @ 240 Btu.
Developed under Boiler Sq. Ft. Hot Water Rad. @ 150 Btu.
Comb. Space
Cubic Feet
Combustion Space
Oil Consumption - G.p.h.

Fig. 1

The second thing is to select a burner best suited for the type of boiler to be fired. For a short boiler, such as our correspondent has, if the pot type of burner or vertical rotary type of burner is used it might be installed as shown in Fig. 2. Both of these burners concentrate the oil fire in the same position as the coal fire for which the boiler primarily was designed. If a horizontal rotary burner is used, it should be installed in the front, see Fig. 3, and not in the rear, as our correspondent has placed his burner and which we believe is not a gun burner from his description of the flame. If a gun burner is used, then it can be installed in the rear provided the

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•

A Maine dealer reports 3 cash jobs and 1 financed.

•

An enterprising New Jersey contractor gets 16 cash jobs and 5 on time payments.

•

From a dealer in upstate New York: 13 out of 51 jobs closed as cash sales.

•

From Eastern Massachusetts: 7 jobs on time payments, 3 closed for cash.

•

Chicago contractor closes 5 financed jobs, 3 cash jobs.

•

From Iowa a report of 3 installations for cash, 1 on time payments.

•

An Ohio contractor says 3 jobs paid cash, 24 signed notes.

•

A Michigan contractor reports 3 jobs closed for cash, none on time payments.

•

In Brooklyn, N. Y. one dealer reports 3 jobs for cash, 3 on time payments.

•

Another Brooklyn dealer reports 5 jobs for cash.

•

From a Wisconsin dealer: 3 cash installations; none on time payments.

•

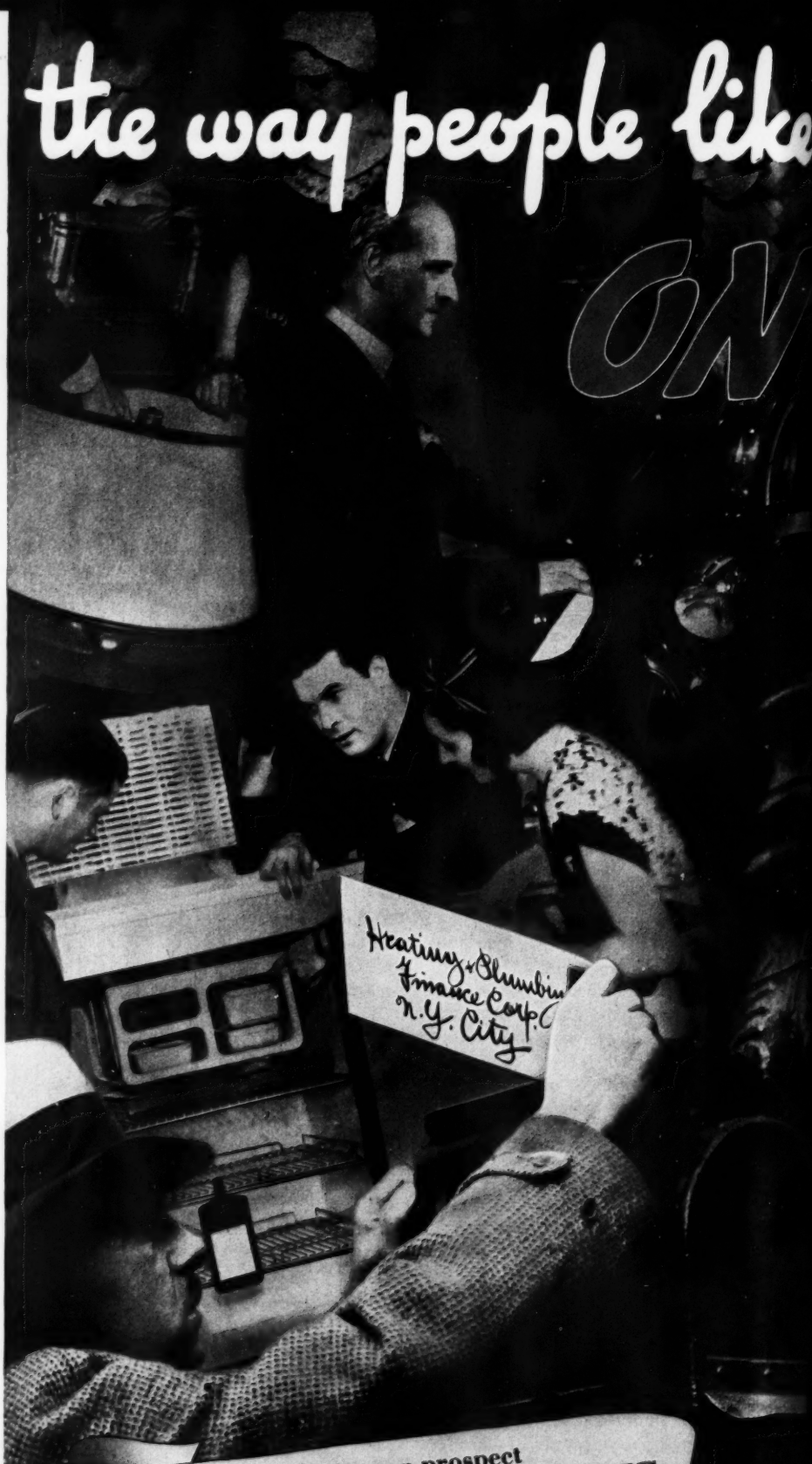
New York City contractor sells 25 jobs for cash; 6 on time payments.

•

MANY OTHER REPORTS INDICATE THAT IT'S WISE TO TALK

TIME PAYMENTS

IT PAYS IN GOOD HARD CASH!



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. . . up to 3 years to pay . . .

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You have nothing to lose, everything to gain by talking time payments to your prospects. It helps close more sales; and surprisingly enough, it brings more cash business. It develops business that you wouldn't get otherwise, and much of it turns into cash sales before the deal is completed.

In any event, *you* get *your* cash at once. When you complete the job, the Heating & Plumbing Finance Corp. sends you all of your money at once, without recourse or hold-back, or any responsibility on your part for your customer's future payments.

Your reputation for doing good work qualifies you to do business under this plan, authorized by the Federal Housing Administration. Sell the way people like to buy and *are* buying every day. Get your share of this business. Write today for details of the Payment Plan and copies of the necessary forms.

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BETTER · HOUSING · PROGRAM

flame is short enough not to impinge on the front end of the setting, see Fig. 4.

The reason for all of this, of course, is to prevent just what our correspondent is complaining about, viz., short circuiting. With the horizontal rotary burner located in the front of the boiler, the flame immediately expands and passes through the entire combustion space before

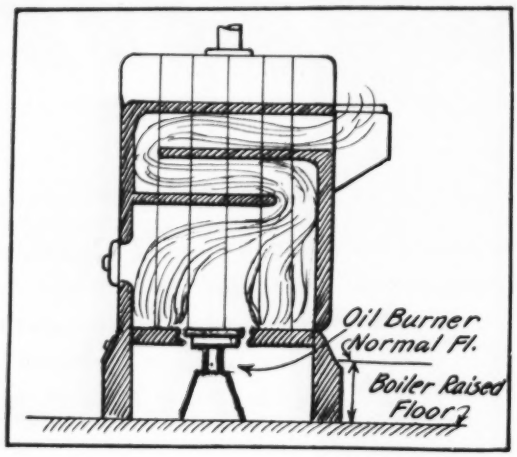


Fig. 2

entering the uptake into the flues of the boiler; with the gun type of burner in the rear of the boiler, the flame is projected forward to a point close to the front and then turns back on itself so as really to pass through the combustion space twice. With the pot or vertical rotary burner the flame is produced in the center, or circumference, of the combustion space in much the same

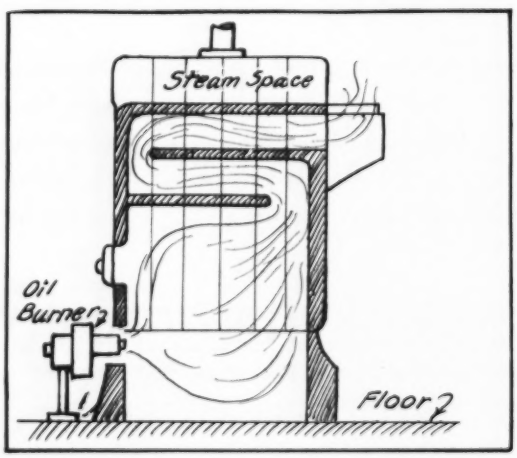


Fig. 3

manner as the coal fire and then proceeds toward the back uptake.

It is most important that the flame should not impinge on any surface as carbon results and incomplete combustion occurs. For this reason we are not in favor of the piece of flue tile as the flame in its present shape—if delivered into such a piece of flue—would impinge on the sides and probably would cause trouble. If the flame can be lengthened to give a result such as is indicated in Fig. 4 we see no reason why the installation should not prove satisfactory, although a prominent burner authority has passed his opinion on this as requiring a burner installed in the front of the boiler instead of the rear. We are not 100 per cent agreed with this opinion as many boilers are fired satisfactorily from the rear, although they usually are a longer design of boiler than that which our correspondent has.

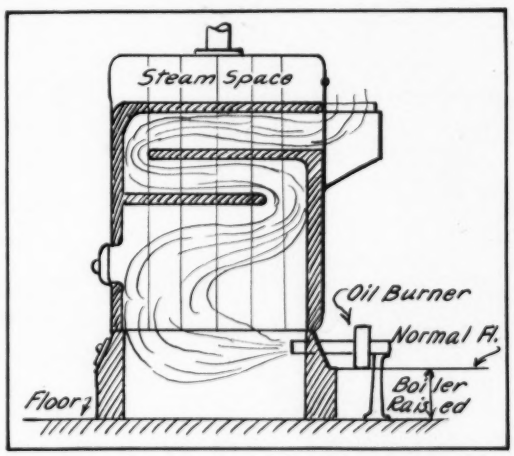


Fig. 4

The chart in Fig. 1 also may be used to find out how many gallons of oil must be fired per hour for a given installation by using the scales on each side, one being for steam radiation and the other for hot water radiation at 150 Btu. per sq. ft. as noted. In this case it is necessary to take the actual radiation installed, add 25 per cent for pipe losses, 25 per cent more for morning pick-up, and to divide the total by 70 per cent as the average boiler efficiency under full load. This is equivalent to adding about 125 per cent to the radiator load and applies to both steam and hot water radiation. Thus, in a job with 900 sq. ft., the burner should be of sufficient capacity to develop under the boiler about

900 sq. ft. × 2¼ or 2,025 sq. ft.

and reading this off of the chart for steam radiation shows that the burner would have to be able to burn about 3½ g.p.h. of oil while if it were a hot water job the burner would have to be able to burn about 2¼ g.p.h. Where domestic hot water is heated on the same boiler about 3½ sq. ft. should be added to the steam radiation for each gallon heated per hour and about 5½ sq. ft. to the hot water radiation where the water may be heated by an indirect heater. As soon as the g.p.h. of oil to be burned under the boiler has been determined, the combustion space may be obtained in the manner previously explained.

In all of this work, the importance of correctly installed equipment cannot be emphasized too strongly.

COMMENTS ON NOVEMBER ARTICLE

To the Editor:

Always ready to assist a fellow craftsman whose water line troubles you state in your November issue, I suggest the following changes in the piping layout and am sure that his troubles will then be over. Unfortunately you show two different diagrams for the piping on the job. If the 22½ degree drop is at the start of the short circuit, it will relieve the 3¼-in. main of condensation; a 45 degree drop would have been better. But, if the short circuit is taken off of the side of the tee, and you have a 3½ by 2 by 2 in. tee installed at this point, the 22¼ degree drop as shown in Fig. 7 (Fig. 5, here), will do no good and then you will have a 3½-in. trapped main.

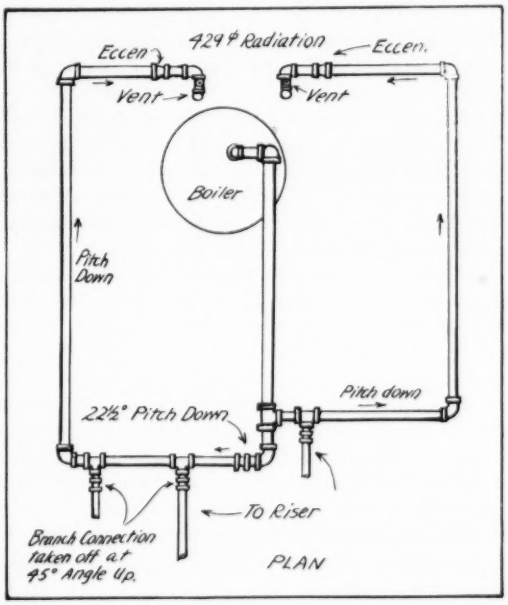


Fig. 5

In any event you should have installed a 3½ by 2 by 3½ in. tee at this point, continued with a 3½ in. pipe for 16 to 18 in., and then reduced to 2 in. with a 3½ by 2 in. eccentric reducing coupling, or—if there is not enough space—continue with 3½ in. to the end of the main and drop with a 3½ in. by 2 in., reducing elbow, close nipple and 22½ degree fitting. A 45 degree fitting would be even better. See Fig. 6, herewith.

Mistake No. 2 is that the drips on the end of the main should be no less than 1½ in. especially on the longest circuit. Of course, 1½ in. is sufficient size below the water line but to have continued 2 in. below the water line would have been even better. There certainly is no object to reduce with eccentric fittings at the end of mains when the same thing can be accomplished with bull head tees at the point where the drop is made.

A better way to start off with the 3½ in. main at the boiler is shown on the sketch given herewith in Fig. 7, there being no necessity for dripping the main, the two inch pipe (which should have been 1½ in.) serving solely as a balance pipe for the Hartford Loop. This is merely an improvement on the taking off of the 3½ in. main from the boiler and has no bearing on the water line trouble. The water is *not* backing out of the boiler. To illustrate what is happening when the burner is running "low" (and assuming that the radiation is about equally devided between the two circuits) consider that the condensate from the shorter circuit is under slightly higher pressure than that on the other side and instead of returning to the boiler through the Hartford Loop it will back up into the shorter return for a number of feet until it has built up sufficient head to overcome the boiler pressure.

If the main is trapped—as has been previously pointed out—there even may be a vacuum created in the long circuit which will be still further aggravated is vacuum vents, vents with checks, or a clogged common vent be installed on the return end of the longer circuit as there will then be nothing to break the vacuum. When the burner is operating on "high" with a higher pressure

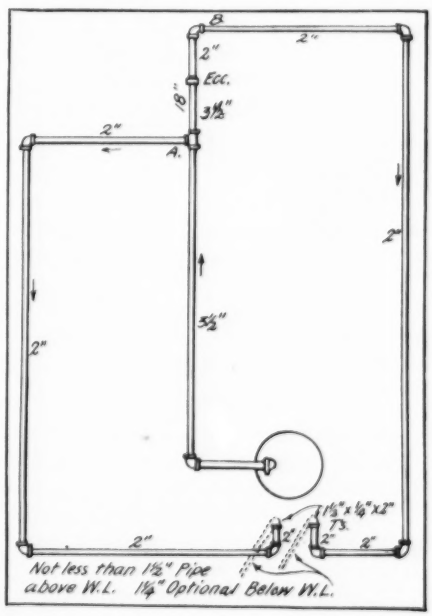


Fig. 6

in the system, these difficulties naturally will be overcome and the water line will return to normal. This also holds good when the pressure drops to zero.

If the contractor who installed this job is not absolutely sure that every piece of 2 in. pipe especially in the long circuit is reamed to its full area, he may just as well take down that part of the main and ream and re-fit it as it never will operate satisfactorily.

I also am of the opinion that the boiler capacity is too small, especially when the burner is operating on "low," as under such conditions a boiler of the type mentioned

will have an output of between 450 and 530 sq. ft., e.d.r., whereas the load is in e.d.r., as follows:

429 sq. ft., direct radiation
107 sq. ft., piping and pick-up
75 sq. ft., for indirect heater (approx.)

611 sq. ft., total.

It would have been better to install a 28 in. boiler which also would have increased the difference between the water line and the returns to 19 in., but I am sure that after the piping has been rectified the system will

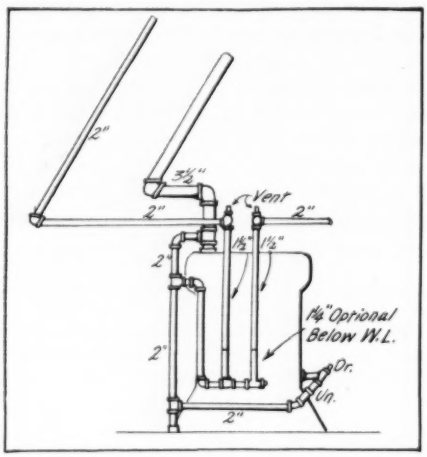


Fig. 7

operate even with the present boiler. I installed one-pipe systems years ago with less than 12 in. between the water line in the boiler and the returns and without a check valve this being before the Hartford loop was known. There was no appreciable change in the water line on these systems.

Wis. V. O. C.

To the Reader:

The branch for the short circuit comes off on a dropped connection which, in the plan shown in Fig. 7 of the article (Fig. 5, here), was not indicated as it would only be represented by a slight curve on the tee and ell bead. Therefore this branch serves as a drip for the main although we question if any drip is required at this point on a one-pipe system as no radiator condensate has, as yet, entered the steam main. Therefore we do not see that a drip at this point solves the difficulty or has any great amount of bearing on the discussion. The 3½ in. main is not trapped even if this connection came off on the side as it is pitched all the way round to the drip at the boiler. We also question the necessity of carrying a 3½ in. main all the way round to the drip connection as our correspondent suggests. We believe that our correspondent has made a good point about the drips being carried down full size of return main to a point below the water line and there being reduced to 1¼ in. This was pointed out in the article.

The use of reducers on the ends of the steam mains also was mentioned in the article as being undesirable. We understand that conditions on the job made it necessary to drop the main after leaving the boiler in order to clear a beam and that is why the main at the boiler was arranged as shown. We already have shown a proposed modification of this in the article and correspondent in Fig. 7 herewith has suggested still another method. We are not inclined to think that the boiler capacity is too small as the times when the burner is on "low" are times when full capacity certainly is not required. It also is difficult for us to conceive such a difference in the pressure drops in the two circuits as to result in holding the water in the vertical portion of the short circuit return a height of 14 in. In fact, if the condensation in the short loop is under slightly higher steam pressure, it would tend to hold back the return in the long circuit rather than in the short circuit.

REFERS TO TRAP ARTICLE AND PROBLEM

To the Editor:

We read an article in your September issue by Earl Brown on thermostatic traps. We have a similar problem on which we would like to ask your opinion.

We have a two pipe vacuum job which pulls from 15 to 20 in. of vacuum every time it operates. It actually shows this much vacuum on the gauge for 10 or 15 seconds every time it operates, which is every three or four minutes when starting the job and about every ten minutes during the day.

There are three separate return mains on the job, each having a vacuum float on the end and connecting together under the water line of the boiler. The job has about 3,000 ft. of radiation.

Our trouble is that the thermostatic members in the traps are bursting (they are all new traps). We are wondering if this momentary 20 in. vacuum would produce the same condition at the thermostatic member in the trap as did the superheated steam in the article by Mr. Brown. In other words, will the pressure difference on the inside and outside of the thermostatic members under these conditions be great enough to burst the members?

Middletown, Ohio. I. H.

To the Reader:

Theoretically, when the vacuum increases, the temperture drops, and the pressure generated in the thermostatic bellows decreases proportionally. However, if the vacuum builds up very quickly, the chances are that the temperature of the bellows does not drop rapidly and the pressure in the bellows does not decrease anywhere near as rapidly as the pressure around it. The natural result is that the bellows eventually burst.

Therefore, I believe you are correct in your analysis of the cause of your trouble.

Appointed Sales Agents in Ohio Territory

The American District Steam Company, of North Tonawanda, N. Y., has just appointed the Tomlinson-MacLachlan, Inc., as its exclusive sales agents in Cleveland and northeastern Ohio territory. The Tomlinson-MacLachlan, Inc., is located at 1603 St. Clair Avenue, Cleveland, Ohio, and will handle the sales of the American District Steam Company's products in the above territory.

Will Hold Short Courses on Stokers and Oil Burners at Wisconsin University

The College of Engineering of the University of Wisconsin at Madison, Wis., which has in the past conducted several successful conferences and short courses on various subjects, has just announced that it will hold a three-day conference on Solid Fuels and Stokers on Thursday, Friday and Saturday, January 31, February 1 and 2, 1935, and a three-day Conference on Fuel Oil and Oil Burners on Thursday, Friday and Saturday, February 7, 8 and 9, 1935.

Both conferences will be held in the new Mechanical Engineering Building, University Avenue, Madison, Wis., under the general direction of Professor G. L. Larson, chairman of the Mechanical Engineering Department of the University of Wisconsin.

The members of the Stoker Committee are: D. W. Nelson, E. R. Kaiser, B. G. Elliott, G. L. Larson and Chairman L. A. Wilson.

The Oil Burner Committee consists of L. A. Wilson, R. A. Rose, B. G. Elliott, G. L. Larson and Chairman D. W. Nelson.

The tentative programs of these two conferences follow:

Tentative Program of Conference on Solid Fuels and Stokers

Thursday, January 31

10-12:00 a. m.—Registration and Inspection of Exhibits.

Technical Session

1:30 p. m.—1. Opening Address, by a representative of the University.
2. Analysis, Classification and Characteristics of Solid Fuels.
3. Principles of Combustion and Flue Gas Analysis.
4. Introduction to and Inspection of Exhibits.

Friday, February 1

Commercial Sessions

8:30 a. m.—1. Purchasing Coal on Specification.
2. Buying and Marketing Solid Fuels.
3. Yard Equipment, and Storage and Treatment of Solid Fuels.
4. Changing Trends in Fuel Merchandising.

1.30 p. m.—5. Psychology of Advertising and Salesmanship.
6. Fuel Dealers' Obligations to the Consumers.
7. Discussion of Solid Fuel Codes.

Dinner and Evening Session

6:30 p. m.—1. University Cooperation with Fuel and Stoker Industries.
2. An address, on some topic of an entertaining or an educational nature.

Saturday, February 2

Stoker Session

8:30 a. m.—1. Types of Domestic Stokers.
2. Installation and Servicing of Stokers.
3. Principles of Stoker Firing and Selection of Stoker Fuel.
4. Control Equipment for Stokers.

Future Trends Session

1:30 p. m.—1. Effect of Building Construction on Fuel Consumption.
2. How Home Owners Can Cut Fuel Cost.
3. Fundamentals of Air Conditioning.
4. Future Trends in Domestic Heating.

Tentative Program of Conference on Fuel Oil and Oil Burners

Thursday, February 7

10-12:00 a. m.—Registration and Inspection of Exhibits.

Fuel Oil Session

1:45 p. m.—1. Welcome by University Representative.
2. Production, Competitive Uses and Future Supply of Fuel Oil.
3. Fuel Oil Characteristics, Specifications and Testing.
4. Combustion Principles for Liquid Fuel Burning.

IN 1935 THE COMPLETE MILVACO LINE

(Heating Specialties and "Approved" Bronze Valves)

will be sold by MORE leading, recognized

Plumbing and Heating JOBBERS

than any other similar combined line of one manufacturer

During the past few years the number of leading, recognized Plumbing and Heating Jobbers who have become distributors of "MILWAUKEE" Heating Specialties and "APPROVED" Bronze Valves has increased to such an extent that "MILWAUKEE" products are now available in every principal city in the United States.

Progressive Jobbers recognize the finer engineering features embodied in "MILWAUKEE" Heating Specialties and "APPROVED" Bronze Valves. Building maintenance men, also, are selecting "MILWAUKEE" products because of their higher operating efficiency and lower maintenance costs.

WE ARE CO-OPERATING BETTER HOUSING PROGRAM

District Offices and Distributors in all Principal Cities

MILWAUKEE VALVE COMPANY
MILWAUKEE WISCONSIN

MANUFACTURERS OF
"Milwaukee" Heating Specialties
"Approved" Bronze Valves

A

Trustworthy

RANGE BOILER

Trustworthy because it is made of a non-rusting metal—copper.

.....because it is made to the seamless drawn design.

.....because it is made by a ninety-year-old coppersmithing firm.

.....because it has proved its value by providing clear, rust-free hot water for more than two generations.

Today's Brown & Brothers Seamless Drawn Copper Range Boilers are made in a full range of domestic sizes.

E. B. BADGER & SONS CO.

75 PITTS STREET BOSTON

271 MADISON AVE. NEW YORK, N. Y.

Friday, February 8

Burner Session

9:00 a. m.—1. Burner Types and Principles of Operation.
2. Burner Testing and Report on Field Survey of Installations.
3. Range Burners, Space Heaters and Hot Water Heaters.

Burner Servicing Session

1:45 p. m.—1. Installation and Adjustment of Burners.
2. Selection of Oil and Fuel Oil Handling.
3. Oil Burner Control.

Dinner and Evening Meeting

6:30 p. m.—Address on an Economic or Business Subject.

Saturday, February 9

Commercial Session

9:00 a. m.—1. Merchandising of Oil Heating Equipment.
2. Oil Burner and Fuel Oil Codes of Fair Practice.
3. Competitive Position of Fuel Oil Among Heating Fuels.

Future Trends Session

1:45 p. m.—1. Building Construction as Related to Fuel Consumption.
2. Fundamentals of Air Conditioning.
3. Future Trends in Domestic Heating.

R. N. Trane Addresses A. S. H. & V. E.

Reuben N. Trane addressing the American Society of Heating and Ventilating Engineers chapter in Minneapolis recently, forecast for air-conditioning a future second to no other great American industry.

Mr. Trane had several important remarks to make, however, in the way the industry should be handled so as to eliminate any possibility of unstable development and told the heating and ventilating engineers present that care must be taken so that the promotional type manufacturers whose equipment would be poor in quality and lacking in proper engineering skill should not seize control of the industry.

"Air-conditioning," Mr. Trane stated, "must remain definitely in the hands of skilled air-conditioning engineers so that the maximum of efficiency and economy both in the comfort cooling field and in industrial processing could be effected."

He intimated that there were several types of firms whose lack of engineering skill might give industry and the public at large false ideas as to what may be accomplished with air-conditioning.

Mr. Trane also reviewed his many years of activity in the air-conditioning industry. At the close of his address he predicted that for large buildings such as hotels and office buildings ducts, which heretofore have been the common means of distributing conditioned air, would some day be almost entirely eliminated due to the remarkable advancements being made in the design and operation of air-conditioning systems.

Mr. Trane is president of The Trane Company, air-conditioning manufacturers, of La Crosse, Wis.

Licensed to Make Special Gas Stove Manifold

The Thomas Devlin Manufacturing Company, Inc., of Burlington, New Jersey, announces that it has secured the exclusive license in the United States to manufacture a gas stove manifold from a specially rolled pipe. The outstanding feature of this manifold is a large number of pipe threads, which is designed to assure especially strong connections.

Sales Helps Offer Aid to Dealers—

Bell & Gossett Co. Issues New Catalog and Manual

The Bell & Gossett Co. of 3000 Wallace Street, Chicago, has just issued a new catalog and manual of hot water heating systems. This handsomely printed loose-leaf book not only completely describes the operation of this company's water heating systems, but is profusely illustrated with installation diagrams, piping layouts, capacity charts and other valuable information about all phases of domestic water heating and hot water circulation control. Among the products covered are triple duty water heating system, booster pumps, boiler water flow control devices, indirect heaters and draft controls.

New Leaflet on Shielded Arc Electrodes

Air Reduction Sales Company of Lincoln Building, New York City, has just issued an 8-page leaflet describing and illustrating its shielded arc electrodes Nos. 78, 79 and 81. Nos. 78 and 79 are heavily coated steel electrodes possessing a quiet arc and smooth flow due to their coating, and are suitable for all position welding. These rods have a tensile strength of from 60,000 to 75,000 lb. per sq. in., an elongation of from 22 to 30 per cent. No. 78 is recommended for flat welding while No. 79 is for vertical and overhead work. No. 81, a heavily coated electrode for flat welding only, has characteristics very similar to those of Nos. 78 and 79, except that its elongation runs about 5 per cent greater.

Bulletins on Automatic Air Controlled Stokers

The Will-Burt Company of Orrville, Ohio, has just issued two bulletins, describing and illustrating its automatic air controlled stokers. One of these features stokers for industrial plants, greenhouses, apartment buildings, hotels, churches, schools, etc., and the other features stokers for homes and residences, and which can be installed in all types of heating plants, hot water, steam, vapor and warm air systems.

Modern Coal Burner Co. Issues Booklet on Stokers

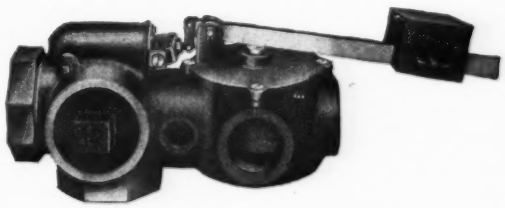
The Modern Coal Burner Company, 20 North Wacker Drive, Chicago, a subsidiary of Peabody Coal Company, has just issued a booklet on domestic stokers, printed in two colors and available to dealers interested in these devices. Included in the booklet are illustrations of homes and apartments in which this concern's stokers are installed.

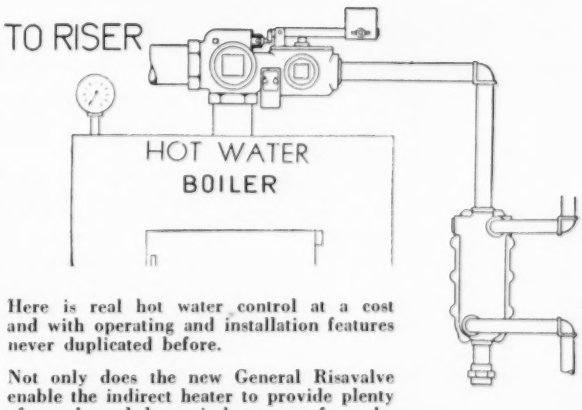
Chart for Figuring Expansion Loops

Tube-Turns, Inc., Herald-Post Building, Louisville, Ky., has developed and issued a quick reference chart which provides an easy and simple method of designing expansion loops, using tube-turns and straight lengths of pipe or tubing. Expansion loops of this construc-

FOR YEAR AROUND DOMESTIC HOT WATER AND IMPROVED PERFORMANCE IN HOT WATER RADIATION INSTALL THE NEW

GENERAL RISAVALVE





Here is real hot water control at a cost and with operating and installation features never duplicated before.

Not only does the new General Risavalve enable the indirect heater to provide plenty of year 'round domestic hot water, from the hot water boiler, but it definitely improves house heating performance on most conversion jobs.

1. No motors, no noise, no operating cost.
2. Adjustable to all needs both for tap water and radiation.
3. Construction entirely eliminates all danger of valve seat sticking or leaking.

Write now for the interesting details of this strikingly new and different method of hot water control—the simplest, most attractive proposition on the market.

***GENERAL RISAVALVE**

Product of GENERAL FITTINGS CO.
Providence, R. I.

**a unit of the* 3-G System

tion are efficient and have been proven practical under a wide range of pressure and temperature applications. This chart, based on modern bending theory, enables the engineer, without going into involved calculations, to quickly lay out efficient, dependable loops that will meet almost any space requirement. Suitable loops may be designed by varying the length of pipe at the top of the loop or of the side legs, depending upon construction limitations. All results given by the chart include an ample safety factor, and maximum fibre stress in loops so designed will not exceed 16,000 lbs. per sq. in., the generally accepted maximum safe working stress for low-carbon steel pipe.

New Folders Feature Radiators and Valves

Slater Manufacturing and Engineering Company of 230 Congress Street, Boston, Mass., has just issued two folders, both entitled "Science Always Wins," illustrating and describing this company's cast iron baseboard radiators and its vacuum vapor valve. These radiators are designed for one-pipe steam, hot water, or vacuum vapor heating systems, and can also be electrified, placed in a metal recess behind a perforated baseboard on outside walls. The vacuum vapor valve is designed to draw steam into the radiator by freely venting, allowing the air in the system to escape, then closing against incoming air. This action is repeated until the steam reaches the valve, which causes the reversed bellows to contract, thus forcing the valve firmly into its seat.

Appointed Distributors for Republic Steel Corporation

The Republic Steel Corporation, of Youngstown, Ohio, has just appointed the following new warehouse distributors of its stainless steel: Buhl Sons Company, of Detroit, Mich.; F. W. Heitmann Company, of Houston, Tex., and The Woodward Company, of Albany, N. Y. The appointment of these distributors gives the Republic Steel Corporation warehouse facilities in forty-five cities.

Steel Products Company, of McKees Rocks, Penna., has just been appointed warehouse distributor in the Pittsburgh area of iron sheets made by the Republic Steel Corporation, according to an announcement just issued by N. J. Clarke, vice-president in charge of sales of that company.

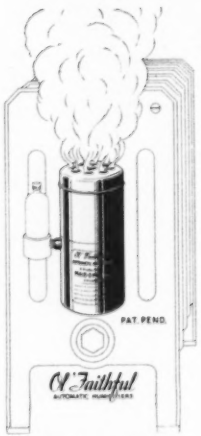
Ilg Electric Ventilating Co. Appoints Additional Representatives

Ilg Electric Ventilating Company of Chicago, manufacturer of air conditioning apparatus and unit heaters, has just appointed representatives for its products in territories centering in Des Moines, Omaha and Tulsa as follows:

N. J. Bigham, Y. M. C. A. Building, Des Moines, Iowa.

George C. Mittauer, 4966 Hamilton Avenue, Omaha, Nebr.

P. E. Ebersole, 214 South Victor, Tulsa, Oklahoma.



Size 3" dia. x 6½" high
Price $8.50

How Many Will You Sell?

The occupants of 7 million steam heated homes and apartments are suffering from desert-dry heating. January is a dull month and they are awaiting your call with an OL' FAITHFUL.

20% EXTRA FOR YOU DURING JANUARY ONLY

In order to place you in a position to build up an established following for OL' FAITHFUL Automatic Humidifiers for low pressure steam and vapor radiation, and our No. 53 WATER-BOY automatic air vent and supply valve for Hot-water Radiator Humidifying pans, your jobber will allow you an extra 20% discount on all orders of a dozen or more of each of the above, shipped at one time during January.

On orders of either, in less than dozen lots, your extra discount will be 10%. This extra is for January shipments only.

If your jobber can't supply you, we will ship by parcel post, C.O.D., direct.

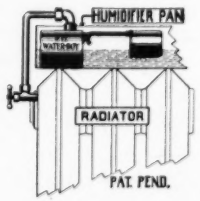
No. 85 WATER-BOY SAFETY FEEDER

Several million owners of low pressure steam boilers are still in need of our low priced water feeder. January is a good month for you to also cash in on this item. Retail price $6.00.

MAID-O'-MIST INC.

Wm. J. Woolley, Pres.

43 E. Ohio St., Chicago, Ill.



Size 1½"x3"

No. 53 Water-Boy
(with fittings, less pan)
Price $5.00

YOU CAN CASH IN

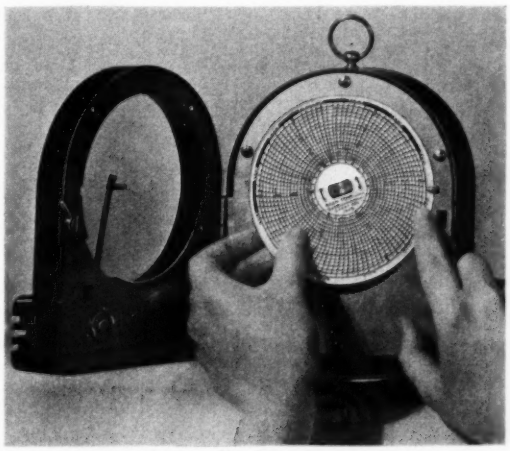
Approximately 300,000 humidifying pans on hot water radiators are dry as the Sahara Desert, awaiting your call with a No. 53 WATER-BOY, which will keep the pan filled and the radiator free of air.

Products FOR Dealers

This section gives a report of the latest news of selected automatic heat and air conditioning products. Sales helps such as these work to open up new and increasing markets for A. H. and A. C. Dealers.

A Portable Temperature Recorder

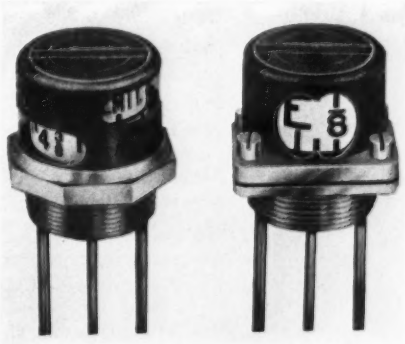
The unit shown in the accompanying illustration has been placed on the market as a portable temperature recording instrument for proving the performance of installed equipment. The measuring element is a bimetallic coil which is fastened permanently to the pivot of the pen arm. The face is made to be non-breakable; all of the metal parts are nickel-plated and described as being rust-proof; the hinges are made an integral part of the casing; all of the parts are fastened permanently; and the pen is of the open type, is of nickel-silver, and is designed to be easy to fill and clean and out of the way when changing the charts. A thirty-six hour clock movement is protected from dust and condensate and is wound, set and regulated from the rear without opening the case or disturbing the chart. The case is made of bake-



lite, 5½ in. wide, 4½ in. deep and 7½ in. high. The charts are 4 in. in diameter; are divided into 24 hours, and each hour is subdivided into 15 minute sections. A fiber case with a handle and a latch is furnished with each instrument. Total carrying weight is 2¾ lb. The Practical Instrument Company, 2717 No. Ashland Ave., Chicago, Ill., is the manufacturer.

Oil Gauge with Bolt Attachments

Here is an oil gauge which is designed so that the head can be bolted to the oil tank. The threaded flange is screwed into the 1½ in. pipe thread opening provided in the tank and the gauge is bolted to this flange. As a result, the gauge shown at the right and its float can be installed in an oil tank without regard to the amount of oil which may be contained in the tank at that time. Both single window and double window gauges are available. The operation of the gauge is magnetic. The



entire unit is designed to be leakproof. It is made by Rochester Manufacturing Company, Inc., located at Brighton, Rochester, N. Y.

Thermostat for Cooling and Air Conditioning

The equipment shown in the accompanying illustration is described as a differential thermostat which is designed primarily for temperature control with room cooling apparatus during the summer. Its operation is based on the idea that it is uncomfortable to maintain one inside temperature with varying outside summer temperatures. For example, an inside temperature of 75 deg. Fahr. will be comfortable when the outside temperature is 80 deg. Fahr, but with the outside at 95 deg. Fahr. the inside temperature should be approximately 80 deg. Fahr. The regulator shown here controls the equipment to which it is connected according to the difference in temperature between the inside and the outside. It operates on the principle of two vapor charged thermal elements opposed to each other, one actuated by the room temperature and the other by the outside temperature. Quick make and break contacts are designed for by means of permanent magnets. The

BETTER BOILERS CAN'T RUST

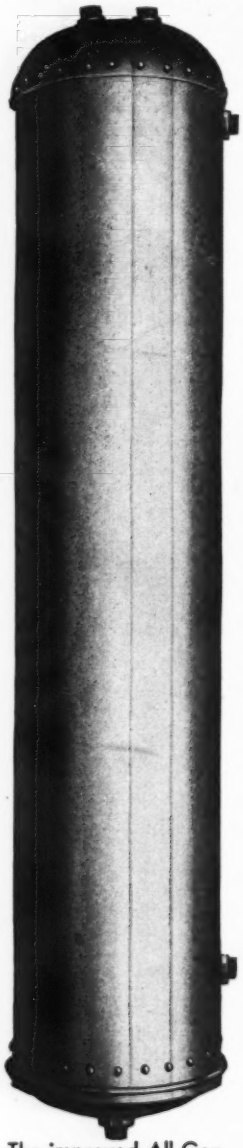
BETTER HOUSING PROGRAM

NOW IS THE TIME TO—

CONSIDER RANGE BOILER PROFITS FOR 1935

GERSTEIN & COOPER

ALL COPPER— RANGE BOILERS GUARANTEED FOR 20 YEARS



Made of heavy unalloyed copper, strongly reinforced and guaranteed for twenty years.

Manufactured for over 30 years by experienced coppersmiths with a record of producing only the finest quality during this period.

Look into G & C Boilers NOW for better boiler business in 1935. Full details on request with name of your nearest wholesaler.

WHOLESALERS, ALSO, WHO SEEK MORE PROFITS IN 1935 SHOULD WRITE AT ONCE FOR FRANCHISE DETAILS.

The improved All Copper G&C Boiler Riveted Top and Bottom and Reinforced to insure against collapse.

G&C Copper boilers are produced under the strict Massachusetts regulations and are stocked in 200, 250 and 350 pounds test pressure in standard sizes or are made to any size or pressure requirements on order.

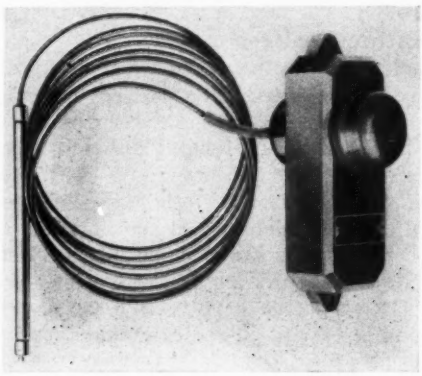
GERSTEIN & COOPER CO.

South Boston, Massachusetts

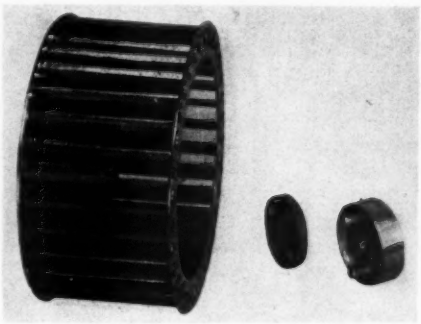
Offices in New York and Baltimore

Representatives: Troop Water Heater Co., Pittsburgh; Edward Sinn, Harrison, N. J.; Strong, Carlisle & Hammond Co., Cleveland, Ohio.

instrument is designed to be mounted where it will meet the average temperature inside. The differential or closeness of control rated for this unit is approximately one degree. It is regularly furnished to make circuit on increasing temperature, but it can be furnished to break circuit under these conditions. Also, it can be furnished for double throw, three wire. Two standard lengths of



tubing for outside bulb are furnished, namely 2 ft. and 20 ft. Tubes of other lengths can be supplied on special order. Electrical rating: Up to 25 watts on current up to 25 volts, A. C. or D. C. For greater loads, or higher voltage, a relay transformer is required. The finish is dull green gold. Detroit Lubricator Company, located at Trumbull, Lincoln, Marquette and Viaduct, Detroit, Mich., is the manufacturer.



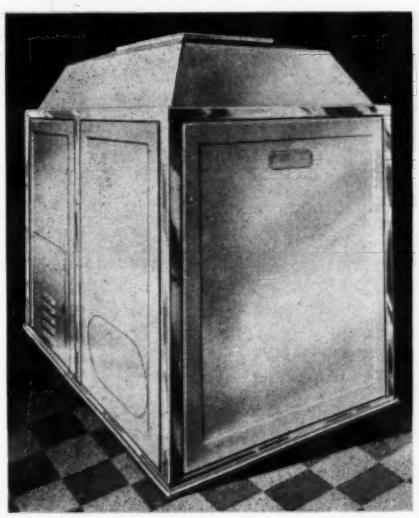
Combined Blower Wheel and Coupling Hub

There has just been placed on the market a combined blower wheel and coupling hub which equipment is described as embodying a number of very desirable features. One side of the coupling is made integral with the steel blower wheel with the idea of affording an opportunity for a short connection and a compact assembly of the wheel and the motor. The coupling is described as being turned out of solid steel stock. Leather is used for the connecting disc. Four hardened steel pins are pressed into the solid parts of the couplings, two in each half. The inside edges of the coupling rims extend

out over the pins for the purpose of reinforcing and protecting the leather disc. Round head set screws are located in the middle of the rim, one on each half of the coupling, to insure true running. Janette Manufacturing Company, 556 W. Monroe St., Chicago, Ill., is the maker.

Conditioned Warm Air Unit for Homes

Just recently there has been placed on the market a new unit designed for the automatic heating and air conditioning of homes. A photograph of this is shown in the accompanying illustration. It employs an oil burner and is designed to reduce to a minimum the amount of duct work necessary. In operation, the unit is made to



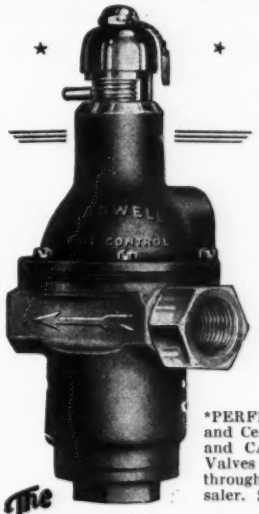
purify, heat, humidify and circulate a steady uniform flow of air. This equipment has been built both for the purpose of replacing present warm air furnace equipment in existing homes and for installations in new buildings. It is rated as having a capacity for heating homes up to eight or nine rooms. The oil burner used in this connection is described as being of the pressure atomizing type. The air conditioning unit includes forced circulation for both winter and summer use and the humidifier has been designed with the idea of preventing the wastage of water. Gilbert & Barker Mfg. Co., of Springfield, Mass., is the maker.

Humidifier Connected to Gas Range

The accompanying illustration shows a humidifier which has been placed on the market for the purpose of eliminating the vent pipe on gas ranges. This unit is attached to the vent pipe of the gas range and contains an aluminum cup which is fitted inside of the aluminum pipe. This cup is designed for one pint of water from which a vapor is produced from the heat of the oven. The vapor forms under the collar of the porcelain top. The gas and baking fumes are described as being washed

THE
CADWELL
CONTROL UNIT

• A FEED VALVE, RELIEF VALVE, BACK PRESSURE VALVE AND BALL CHECK AND SCREEN ALL IN ONE COMPLETE UNIT.



IMPROVES EVERY HOT WATER HEATING PLANT!

★Because this one complete valve *faultlessly* performs the *combined* functions of feed valve, relief valve, back pressure valve and ball check and screen, the CADWELL Control Unit will *vastly* improve every hot water plant upon which it is installed. The outstanding advantages of such a unit are immediately apparent to the heating man; he knows that these services can be provided by no other *single* means; he knows, too, that this valve will give his customers *complete heating satisfaction.*

The CADWELL Control Unit is closed by *internal pressure.* No heavy springs; valve seats *cannot stick.* One pound pressure drop closes valve tightly. To test valve, a downward thrust of center pin is all that is necessary. Sediment is removed from valve seat in the same operation. Screen and feed valve may be detached for cleaning or inspection *without drawing water from system.* The check valve prevents syphoning which would otherwise occur from breaks in supply line. Because of a point relief a greater degree of *sensitivity* and *accuracy* is attained. Lever on top facilitates filling.

The owner of every hot water heating plant in your locality is a real live prospect for the CADWELL Control Unit. Order yours from your wholesaler today. Circulars giving complete details sent upon request.

*PERFECTION Floor and Ceiling Plates and CADWELL Air Valves are also sold through your wholesaler. Stock up now!

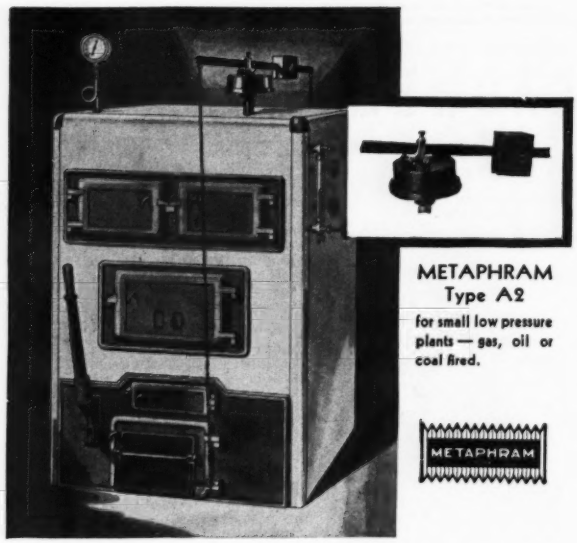
The
BEATON & CADWELL MFG. CO.
Established 1894
NEW BRITAIN, CONN.

A new pressure control employing the old reliable Bourdon tube and Mercoid switch, but with the added feature of independent external adjustments for high and low setting, each directly indicated on calibrated dial. A glance shows the pressure at which the instrument will open or close the circuit.

Sealing or locking means provided as standard to prevent tampering.
Immediately available for shipment in 10" vac. to 12 lb. pressure with minimum operating differential of one pound. Additional ranges will be available in immediate future.

Mercoid Controls Are Also Distributed and Stocked in Many Cities By The Graybar Electric Co., Inc.

THE MERCOID CORPORATION
Sole Manufacturers of The Mercoid Switch
4221 Belmont Avenue ✦ Chicago, Illinois



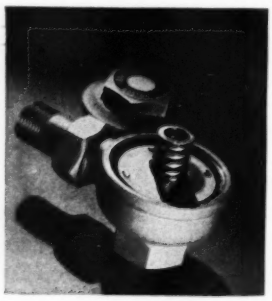
METAPHRAM Gradual Control

covers the entire range of domestic hot water and low pressure boilers and tank heaters, either gas, oil, or coal fired.
Full stock carried in New York, 210 E. 45th St.

Descriptive Bulletins on Request

NATIONAL REGULATOR CO.
2317 KNOX AVENUE CHICAGO

fixes traps quick



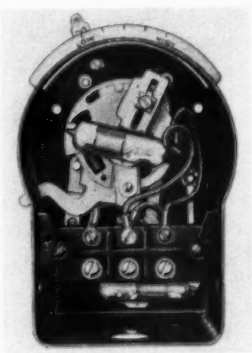
When a trap gets cranky, unscrew the cover, lift out the old element, drop in a new B. & J. cage unit. The trap is at once returned to new-trap performance. Each unit is complete in itself, with its own thermostatic element, plug and seat. No adjustments. No skill. No special tools. No trouble. No delay. And the cost is usually less than half the cost of ordinary repairs. Write today for bulletin.

BARNES & JONES, *Incorporated*
504 Brookside Avenue Boston, Mass.

by the vapor action and the condensed vapor is made to pick up grease and dirt and settle it in the bottom of the cup. This unit is finished with a porcelain removable top in white, ivory, green and black colors to match gas ranges. The humidifying action comes as a result of the vaporization of the water in the cup. Installation is made by slipping the unit over the collar of the oven vent. Ward Manufacturing Company, 107 E. Milwaukee Ave., Detroit, Mich., is the maker.

An Improved Switch for Stokers

The switch shown in the accompanying illustration has just been placed on the market as an improvement in equipment for use in connection with stokers. The purpose of this is to provide a control for keeping stoker fires alive in mild weather when calls for heat from the thermostat are infrequent. The idea is that during the

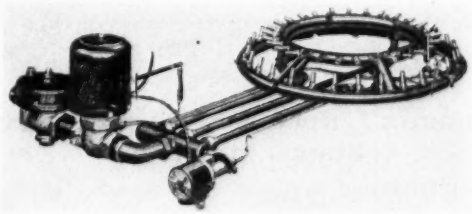


long off-periods of the thermostat, many domestic and small industrial stoker fires gradually will subside to a point where fresh coal fed in will not be ignited unless the fire is kept up by occasional brief firing periods. The switch shown here is mounted in the stack and is designed to give a short operating period whenever the stack temperature drops to a pre-determined point. This operation is based on the idea that the condition of the fire is directly indicated by the stack temperature. A high

temperature cut-off feature has been built into this new control which is designed to break the circuit to the stoker motor automatically when the element temperature reaches 850 deg. Fahr. This is for the purpose of eliminating the possibility of installing a stoker switch under conditions that later would permit excessive temperatures. This high temperature cut-off feature also is designed to promote the efficiency of the installation on the basis that by shutting down the stoker for brief periods when the stack temperatures are high, more even firing is assured with a material reduction in stack losses. Improvements in construction over previous models also are listed in favor of this device. This switch consists of a stamped steel case which houses the mercury switches operating cams and terminals. A shaft carrying the bimetallic helix projects from this, the entire shaft and helix being enclosed in a protecting tube of seamless steel. This tube is for the purpose of protecting the helix from the corrosive action of the flue gases. Minneapolis-Honeywell Regulator Company, of Minneapolis, Minn., is the manufacturer.

An Improved Conversion Burner

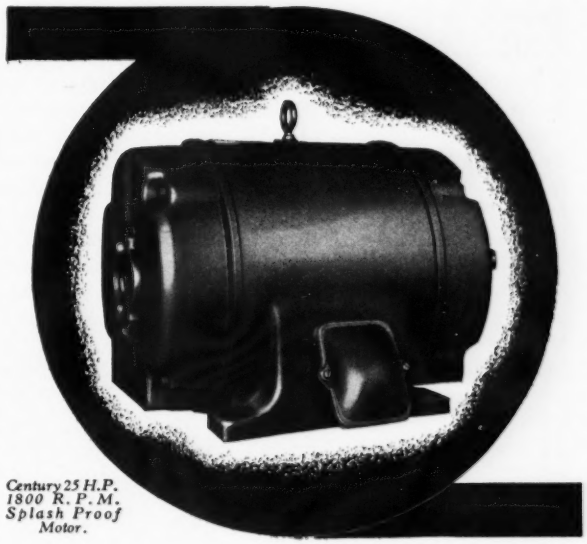
An improved gas conversion burner, for application in round house heating boilers and furnaces has just been placed on the market. The size range of this equipment has been amplified by the addition of three new units, the idea being to insure a proper assembly for any grate diameter from 12 to 34 in. inclusive. Refinements also



have been made in the jets and in the entire assembly for the purpose of effecting more quiet operation without reducing the flame temperature of 1900 deg. Fahr., for standard gas consumption. In the matter of controls, this equipment is furnished with a safety pilot designed to assure ignition within one minute and complete shut-off in case of gas failure, in two minutes. The Barber Gas Burner Company, of 3702 Superior Ave., Cleveland, Ohio, is the manufacturer.

Will Represent Barnes & Jones, Inc.

James A. Walsh, Inc., Architects' Building, 17th and Sansom Streets, Philadelphia, Penna., has just been appointed representative for Barnes & Jones, Inc., of Boston, Mass., to cover Delaware, eastern Pennsylvania and southern New Jersey. Barnes & Jones, Inc., manufacture equipment for vapor and vacuum heating systems.



Century 25 H.P. 1800 R. P. M. Splash Proof Motor.

SPLASH PROOF

Where there's often a lot of water and dampness, there are a lot of Century Splash Proof Motors... These motors are actually splash proof—the "baffles" in the end brackets are scientifically designed and spaced to protect the motor against water from any angle. Frames and end brackets of refined gray cast iron protect them against damage from flying or falling chips and heavy particles... Ask Century Engineers for correct application data on these and other types of Century Motors—Single Phase, Polyphase, Direct Current... 1/250 to 600 H. P.

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MULTISPEED SQUIRREL CAGE MOTORS

The speed change requirements of Air Conditioning Equipment are most economically met with Century Multispeed Motors. 2, 3, or 4 speeds — Automatic, push button or manual control . . . 1/8 to 200 H. P.

Century 3 H. P., 60 Cycle, Ball Bearing, Flange Mounting, Splash Proof Motor

Get This

Bulletin 6-1, p. 11 tells all about Century's Splash Proof Motors —Slip Ring, Flange Mounting and 2-way Ventilation.

Century

SINGLE PHASE, POLYPHASE, DIRECT CURRENT
1/250 to 600 H. P.
MOTORS

Brown Instrument Co. Consolidated with Minneapolis-Honeywell Regulator Co.

The Brown Instrument Company, manufacturer of pyrometers, thermometers, flow meters and controlling instruments at Philadelphia, Pa., has been consolidated with the Minneapolis-Honeywell Regulator Company of Minneapolis, Minn., according to announcement issued by H. W. Sweatt, vice president of the latter company.

Richard P. Brown will continue as president of the Brown Instrument Co. and will become an officer and director of the Minneapolis-Honeywell Regulator Company. The Brown Instrument Co. will remain a separate company with its existing organization but as a subsidiary of the Minneapolis-Honeywell Regulator Company, and its sales and service facilities will be continued from the present office and factory at Philadelphia and the district offices located throughout the country.

The Minneapolis-Honeywell Regulator Company maintains branch and distributing offices in fifty-eight cities and subsidiary companies in Canada and Europe. The Brown Instrument Company maintains twenty-two branches in the United States, and its business has been exclusively in the industrial field.

"In view of the fact that the acquisition of the Brown Instrument Company rounds out and complements the Minneapolis-Honeywell line, both companies will be operated independently of each other," said C. B. Sweatt, vice-president in charge of sales of the Minneapolis-Honeywell Regulator Company. "Both companies will maintain their own identity in the sales field."

Richard P. Brown, president of the Brown Instrument Company, said: "Minneapolis-Honeywell manufactures devices used principally in the domestic and commercial heating and air conditioning field, while our products go to industrial plants. It is my sincere belief that a combination of our companies reaching parallel markets will be advantageous from a manufacturing, development and sales end."

More than five hundred people are employed in the Philadelphia plant of the Brown Instrument Company, and the Minneapolis-Honeywell plant employs approximately 1800 persons. In addition Minneapolis-Honeywell Regulator Company maintains a plant at Toronto, Canada, and at Wabash and Elkhart, Ind.

Stoker Manufacturers Association Holds Annual Meeting

J. R. Whitehead, manager of stoker and research divisions, Fairbanks, Morse & Co., Chicago, was elected president of the Stoker Manufacturers Association at the annual meeting held in Cleveland, Ohio, on December 10. He succeeds W. H. Rea, president, Detroit Stoker Co., Detroit, who has served since the last annual meeting held in June, 1933. R. B. McClave, president, McClave-Brooks Company, Scranton, Pa., was elected vice-president, succeeding Mr. Whitehead. Harry H. Kurtz, Iron Fireman Manufacturing Co., Chicago, was reelected treasurer, and Marc G. Bluth, Chicago, was re-elected secretary.

Important problems facing the industry were discussed in an all-day session and at the annual dinner in the evening the members listened to an interesting talk on "Fair Trade Practices" by W. C. Connolly, a boiler manufacturer and a pioneer in the development of ethical trade practices in that industry. Other talks were made by T. A. Marsh, Iron Fireman Manufacturing Co., and by the new and retiring presidents.

H. H. Kurtz was re-elected as the official representative of the Association on the Committee of Ten, and the organization unanimously voted to contribute a substantial sum to help support the Committee's activities during 1935.

Unit Air Cooling Goes Under Refrigerating Code

The Unit Air Conditioner Manufacturers' Association recently applied to the NRA to have included under the Refrigerating Machinery Industry code all air conditioning machinery and equipment incidental thereto, built with or adapted for a cooling or refrigerating medium. The request also asked withdrawal of the code proposed for the Unit Air Conditioning industry upon which public hearing had been held. The National Recovery Administration has approved the request of the Unit Air Conditioner Manufacturers' Association to have this portion of air conditioning classified under the Refrigerating Machinery Industry code. This action on the part of NRA and the Unit Air Conditioner Manufacturers' Association is an important and constructive contribution to NRA's efforts to coordinate closely related industries under one code rather than under several separate codes, William B. Henderson, secretary-treasurer of the Refrigerating group, points out.

Kelvinator Corporation Opens New Sales Branch in Chicago

The Kelvinator Corporation of Detroit, Mich., has opened a factory sales branch at 830 Rush Street, Chicago, where it has secured a ground floor space of 4,500 sq. ft. The new branch is in charge of G. E. Rogo, and it will confine its activities to air conditioning and apartment house work. Mr. Rogo has been connected with the Kelvinator Corporation as assistant treasurer, and he spent three years as district manager for Leonard Refrigerator Co. covering New England territory. A. E. Caldwell, formerly with Kelvinator's Boston branch, will head the commercial division of the new Chicago branch.

Electricity—

(Continued from Page 76)

in the same direction even when the waterflow reverses. In a series alternating current motor the armature wires are always pulled in the same direction because the current flow and the magnetic field both reverse at the same time."

"You have followed my line of reasoning very carefully, my friend. Now I shall explain the repulsion

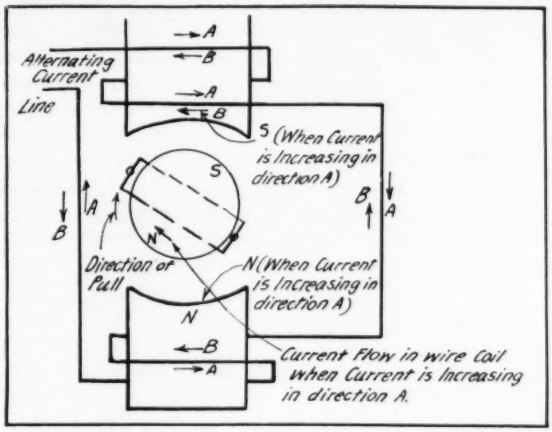


Fig. 5—"Like poles repel one another, but since they are on 'Dead center' nothing happens."

motor. In Fig. 2 I showed that if the field windings are connected to an alternating current line and the coil is in a vertical position, there is no induced current in the coil. However, if the field current is flowing in direction A and the coil is in the horizontal position, there is an induced current in the coil which flows up through the paper in the right hand wire of the armature coil and down through the left hand wire, as shown in Fig. 2. When the current is flowing in this direction in

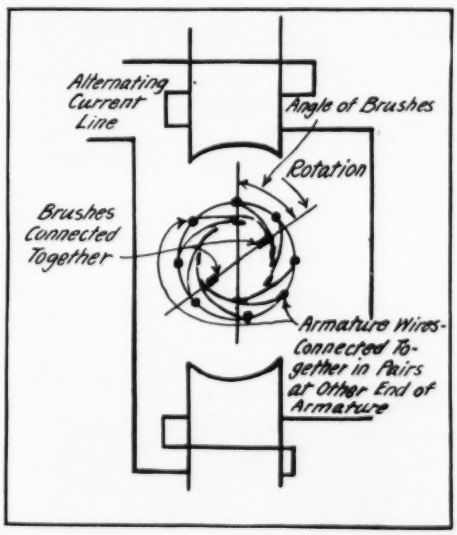
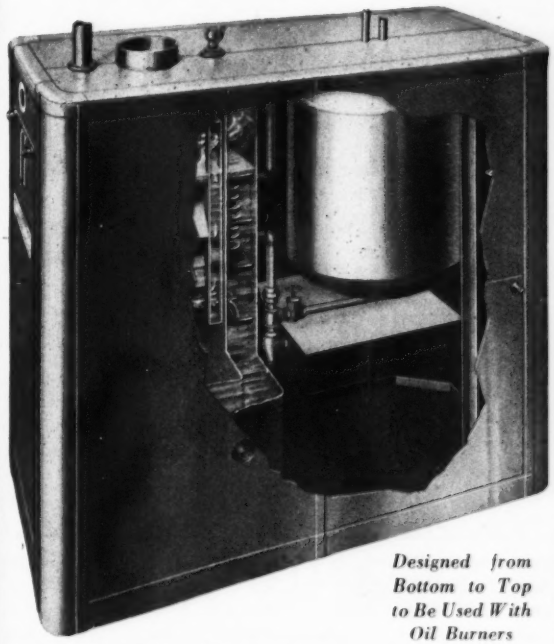

Alternating Current Line
Angle of Brushes
Rotation
Brushes Connected Together
Armature Wires Connected Together in Pairs at Other End of Armature

Fig. 6—"A repulsion motor is equipped with brushes which are arranged in such a manner that the coil in the position shown in Fig. 5 is the only one which forms a complete coil. This is accomplished by using two brushes connected as shown here."

the armature coil, the upper part of the armature becomes a southpole, which is exactly the same as the upper field pole, as shown in Fig. 5. Likewise the lower armature pole and the lower field pole become north poles. Like poles repel one another, but since they are on 'dead center,' nothing happens.

DON'T MISS THIS OPPORTUNITY

THIS BOILER IS THE TALK OF THE INDUSTRY



Designed from Bottom to Top to Be Used With Oil Burners

A FLASH BOILER STABILIZED—

20% of water boiling generates steam quickly.

80% stabilized the action of the quick steaming generators, holding heat the longest possible time.

A complete unit enclosing boiler and large tank connecting to copper coil for domestic hot water.

Oil burner of any make fits into ample space.

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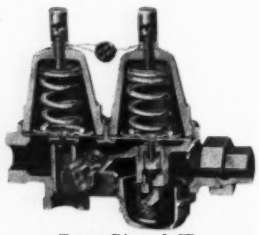
BETTER CASH-ACME VALVES

profitable
to both
plumber and user

only: Cash-Acme offers . . . . .

1. By-pass for quick filling and testing of system.
2. Built in union for quick and easy installation.
3. Bronze Nickel Chrome Relief Valve seat. No sticking.
4. Improved Composition Regulator Seat *always* tight closing.
5. Double strainer protection for working parts.

In one single unit!



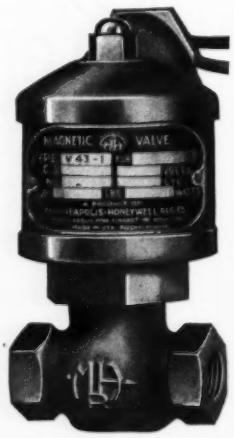
Types CA and CB Pressure Control

If your Jobber cannot supply you write for Bulletin D2

A. W. Cash Valve Mfg. Corporation
600 NORTH WATER STREET
DECATUR, ILLINOIS

AIR CONDITIONING
CONTROLS

for
Domestic or
Commercial
Installations



Magnetic Shutoff Valve. Silent Solenoid valve with replacement seat and plunger. Especially designed for domestic air washers.

MINNEAPOLIS-HONEYWELL Air Conditioning Controls govern all phases of this work, including heating, cooling, ventilating, humidifying or dehumidifying. There are controls for every application, each designed to accomplish its particular function with characteristic Minneapolis-Honeywell accuracy and efficiency. Minneapolis-Honeywell Regulator Company, 2801 Fourth Avenue South, Minneapolis, Minn. Branch and distributing offices in all principal cities.

MINNEAPOLIS-HONEYWELL
Control Systems

"Assuming that the coil is midway between the vertical and horizontal positions as shown in Fig. 5, we see that the current induced in the armature will flow in the direction shown when the field current is increasing in direction A. The upper pole of the armature will be a south pole, which will be repelled by the upper field pole, the latter being a south pole also. The result is that the armature will turn in a clockwise direction, but when the armature coil reaches the vertical position, no current will be induced in it (see Fig. 2) and the coil will stop turning.

"As long as the armature coil is in the position shown in Fig. 5, the coil will be pulled in the direction shown. For this reason, a repulsion motor is equipped with brushes which are arranged in such a manner that the coil in the position shown in Fig. 5 is the only one which forms a complete coil. This is accomplished by using two brushes which are connected as shown in Fig. 6. In this way only the coil with which the brushes make contact is a complete coil, so the motor revolves in the same direction in which the brushes are offset. This is called a repulsion motor because the armature pole and the field pole which are closest to one another are of the same polarity and therefore repel one another.

"It seems to me that it is quite similar to a series motor, isn't it?

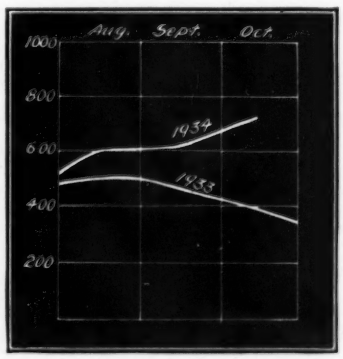
"Very similar. It has a commutator and brushes and even has about the same operating features, because its speed will vary greatly with the load and the voltage and it will run away on no load. However it is better than an alternating current series motor in the fact that it has less sparking of the brushes."

(To Be Continued)

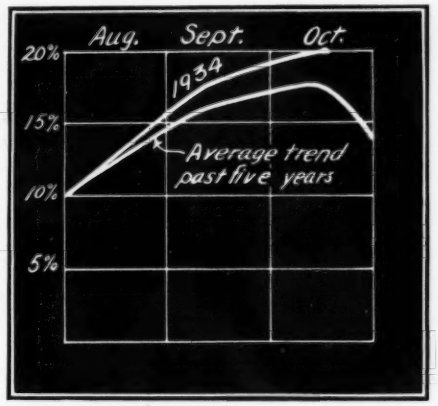
Business—

(Continued from Page 57)

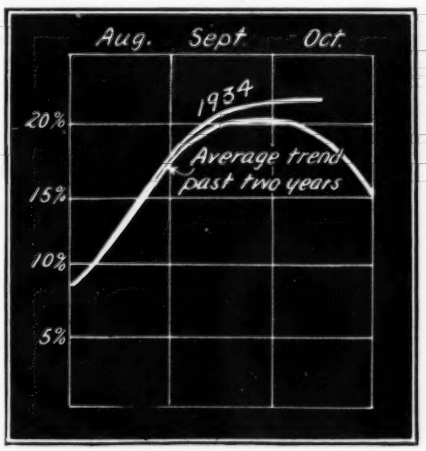
In addition to the above items directly in the automatic heat and air conditioning field, closely allied products such as cast iron and steel boilers are enjoying similar advances. In September and October, the increase for cast iron boiler sales over 1933 was 25.4 per cent and for steel boilers 56.4 per cent.



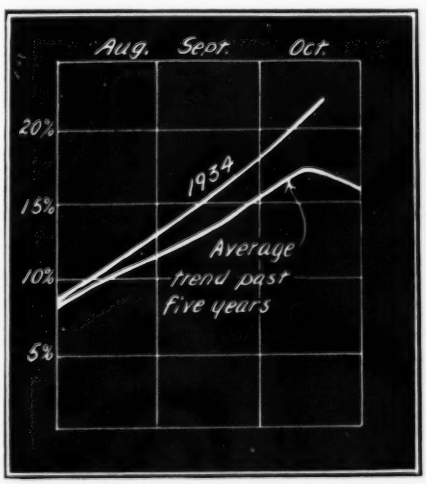
These curves show new orders for steel boilers in three months of 1934 as compared with the corresponding three months of 1933. Marked increases are indicated



Here is a special chart developed by our Marketing Staff. The curves are for shipments of oil burners and show that the increase in oil burner shipments during September and October of 1934 was 13 per cent greater than seasonal



The increase in stoker shipments during September and October of 1934 was 5.8 per cent greater than seasonal



The increase in cast iron boiler shipments during September and October of 1934 was 21.3 per cent more than seasonal. The gains shown by these three charts are significant because they show increases over averages for the past two to five years

Winter Weather
HELPS THE SALE OF
EXCELSO
QUALITY WATER HEATERS

So easy to install—lower the fire, make the few necessary connections and a profitable job is completed.

EXCELSO PRODUCTS CORP.
57 Clyde Avenue Buffalo, N. Y.
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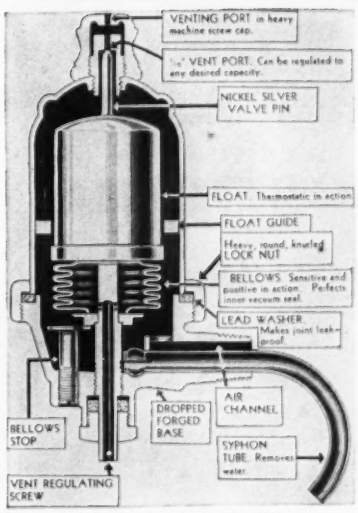
Ask Your Jobber

VENT·RITE
(CONTROLLED VENTING)
RADIATOR AIR VALVES


VENTING PORT in heavy machine screw cap.
1/16" VENT PORT. Can be regulated to any desired capacity.
NICKEL SILVER VALVE PIN
FLOAT. Thermostatic in action.
FLOAT GUIDE
Heavy, round, knurled LOCK NUT
BELLOWS. Sensitive and positive in action. Perfects inner vacuum seal.
LEAD WASHER. Makes joint leak-proof.
AIR CHANNEL
DROPPED FORGED BASE
BELLOWS STOP
SYPHON TUBE. Removes water.
VENT REGULATING SCREW

Cross Section—No. 2—I.V.S.

Have excelled in performance through 2 Heating Seasons.

•

Meet the venting requirements of each individual radiator.

•

Eliminate lagging radiators at end of lines. Prevent overheating of radiators nearest to the boiler.

•

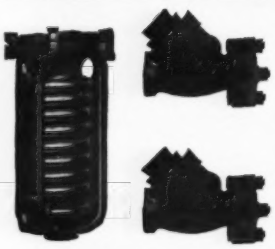
Balance resistance, control distribution and make *Balanced Radiation* a practical fact.

VENT·RITE Valves are carried in stock by leading jobbers everywhere

Manufactured by Anderson Manufacturing Co., Cambridge, Mass.

BALANCED RADIATION

WE GUARANTEED A
$10 MONTHLY SAVING
IN DOMESTIC
HOT WATER COST
...ACTUALLY SAVED $20



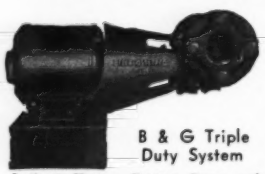
Satisfied User Praises B & G Indirect Heater

"The B & G Water Heater you installed in my home over three years ago is satisfactory in every way. My gas bill was reduced even more than you said it would be. Formerly running from $20 to $25 per month, it is now less than $5 monthly. Add my name as one of your more than satisfied customers." (Name of owner on request.)

Home Comfort Increased

Where a B & G Triple Duty System is installed, cheap domestic hot water is only part of the story. The forced circulation provided by this modern system, plus positive control of boiler water flow, assures instant heat upon demand and uniformity of room temperature.

Every plumbing and heating contractor should have the money-making facts on B & G Triple Duty Systems. See your wholesaler or write for descriptive literature and prices.



Indirect Heater, Booster Pump and Flow Control Valves are the simple units of the B & G Triple Duty System.

BELL & GOSSETT COMPANY
3000 WALLACE ST., CHICAGO

STEAM IN 3 TO 7 MINUTES!

Investigate

The NEW
Master Kraft
BOILER BURNERS
Cast Iron and Steel

New principle revolutionizes boiler-burner efficiency. Generates steam in 3 to 7 minutes. Stores upwards of 350 lbs. of feed water at high temperature. Slow velocity of gases transmits greatest heat from fuel oil. Cuts fuel bills by large percentages. Write for full data on Master Kraft Oil Burners and Boiler Burner Units and details on Master Kraft 1935 profit plan.

HARVEY-WHIPPLE INCORPORATED
157 Emery St., Springfield, Mass.

Movie—

(Continued from Page 70)

Therefore, if a window is set into the wall, or has a projection of masonry surrounding it, or even a lintel across the top, and if it is assumed that the sun's rays are at a 45 degree angle from above at the time of worst condition it is possible to subtract from the height of the window an amount equal to the distance it is within the wall this being the shaded area—see Fig. 3. For example, a 3 ft. by 5 ft. window set 12 in. back in the wall could be considered as a 3 ft. by 4 ft. window as far as sun effect is concerned.

In most cases the electric lighting load also may be

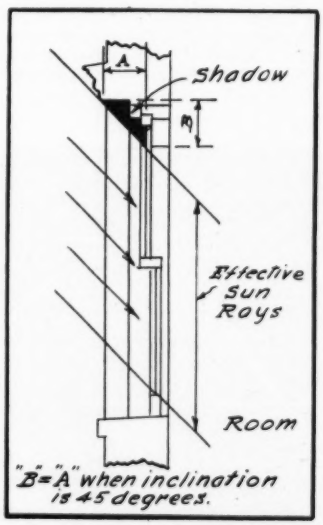


Fig. 3—Here it is possible to subtract from the height of the window an amount equal to the distance it is within the wall, this being the shaded area

deducted from the sun effect as it is seldom that electric lighting will be required in a well windowed building when the sun effect is at the maximum. It also is

SUN EFFECT TESTS
Made Aug. 1st
*Btu per Sq Ft., on Wall Surfaces and Normal to the Sun

Time	South Wall	East Wall	West Wall	Roof—Flat	Normal
5:00 A. M.	0	0	0	0	0
6:00 A. M.	0	50	0	15	55
7:00 A. M.	0	162	0	67	180
8:00 A. M.	25	205	0	150	250
9:00 A. M.	65	190	0	210	288
10:00 A. M.	90	133	0	250	305
11:00 A. M.	110	70	0	280	310
12:00 Noon	118	0	0	285	310
1:00 P. M.	110	0	75	280	310
2:00 P. M.	90	0	140	250	305
3:00 P. M.	65	0	180	210	288
4:00 P. M.	25	0	205	150	250
5:00 P. M.	0	0	170	67	180
6:00 P. M.	0	0	55	20	60
7:00 P. M.	0	0	0	0	0

*Developed from data in 1934 A.S.H.V.E. Guide.

unnecessary in a single room or portion of a building having more than one exposure to consider anything beyond the one wall with the worst sun effect as this

effect will be diminished as the other walls increase; also on the refrigeration load for a building only the wall with the worst sun effect need be added in the calculations and for the same reason.

In the case of a large number of rooms on different sides of the building, the rooms themselves must be calculated for the worst sun effect in each individual room and equipment to meet this must be provided for the room but, on the general system, only the worst wall need be considered as stated previously owing to the fact that all of the rooms could not possible experience the worst sun effect on more than one side at one and the same time.

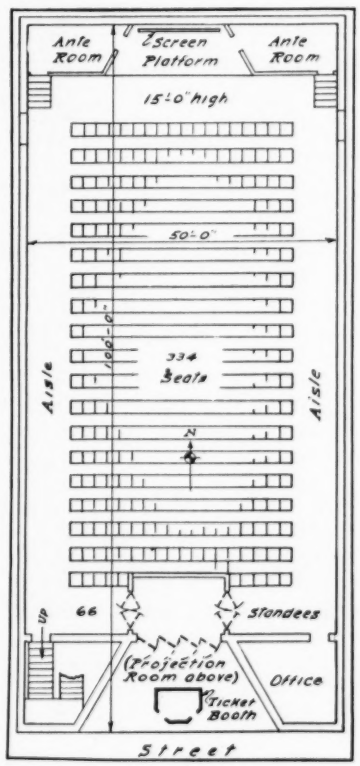


Fig. 4—This shows the plan of the small moving picture theater in which it is desired to install air conditioning

PROBLEM NO. 9

In the small moving picture theater shown in Fig. 4 it is desired to install some summer cooling; what would be one good method of installation?

SOLUTION

According to Fig. 4 this building is approximately 100 ft. long by 50 ft. wide and ceiling height is about 15 ft. There are 334 seats with space for about 66 standees making the total number of persons about 400 persons. The building faces south and is protected from sun effect on the east and west sides but not on the roof. The projection room has its own method of ventilation and no lights are used while the picture is on the screen so that the calculation of the amount of heat is greatly simplified. There are some ventilators in the ceiling which will be throttled down so as to permit only the amount of air desired to escape. It will

BALANCED HEAT!

WITH COMPENSATED CONTROL BY BARBER-COLMAN

A STEP AHEAD of all similar systems is Barber-Colman's "Compensated Control." It is the most effective of regulators for residence use, and is applicable in commercial buildings as well. Principal benefits: more uniform temperature throughout the heating season, elimination of mild-weather overheating and waste, elimination of floor drafts and stratification, reduction of heating costs. Send for literature. Barber-Colman Company, Rockford, Ill.

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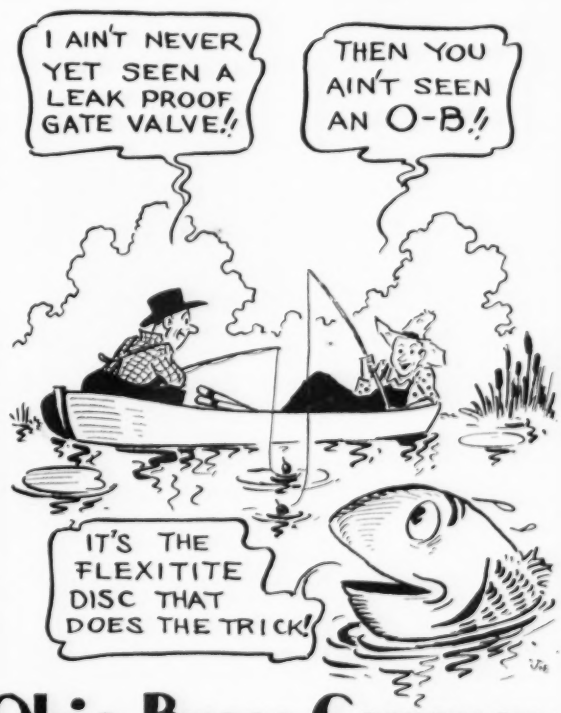

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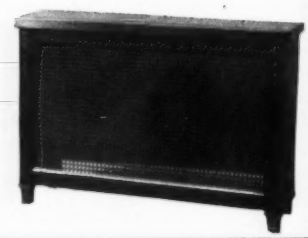

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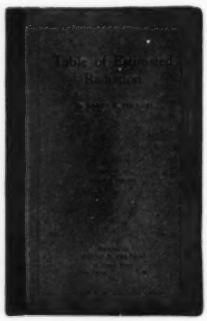

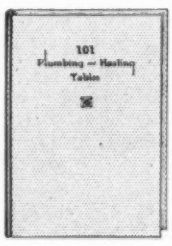

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be assumed that about 50 per cent recirculation will be used and that about 25 per cent of the air will pass out through the ventilators and 25 per cent through the doors. The walls are 12 in. brick, plastered on the inside, and the roof is wood with roofing and a lath and plaster hung ceiling below.

The wall factor for 80 deg. Fahr. inside when it is 95 deg. Fahr. outside will be 0.34 × 15 (see Table One) or 5.1; this will be called 5 Btu. in the calculations. Then

North Wall	
50 ft. × 15 ft. × 5 Btu.....	3,750 Btu.
South Wall	
*Doors, 5×2 ft. 6 in. × 7 ft. 0 in. × 1.1 × 15.....	1,444 Btu.
*Same as glass.	
East Wall	
100 ft. × 15 ft. × 5 Btu.....	7,500 Btu.
West Wall	
100 ft. × 15 ft. × 5 Btu.....	7,500 Btu.
Roof	
100 ft. × 50 ft. × 0.28 × 15.	21,000 Btu.
Sun Effect on Roof	
100 ft. × 50 ft. × 10 Btu....	50,000 Btu.
Total	91,194 Btu.
Body Heat—sensible at 80 deg. Fahr.	
400 × 215 Btu.....	86,000 Btu.
Electric Heat	none
Other Sources of Heat.....	none
Total	86,000 Btu.
GRAND TOTAL — SENSIBLE HEAT TO BE REMOVED.....	177,194 Btu.

Air required per hour to remove sensible heat at 4 cu. ft. per Btu. to be removed 177,194 × 4 or 708,776 c.f.h. which is 708,776/60 or 11,813 c.f.m. and adding 10 per cent for safety gives 11,813 plus 1,181 or.....12,994 c.f.m. (say 13,000 c.f.m.)

If this is divided among four units each unit must supply about 13,000/4 or... 3,250 c.f.m.

The refrigeration load will be as follows:

Sensible Heat	177,194 Btu.
Cooling Outside Air from 95 deg. Fahr. to 80 deg. Fahr. 50 per cent of 11,813 c.f.m. × 15 degrees × 0.24 Btu. × 60	
13.34 cu. ft. per lb. or	95,646 Btu.
Total Sensible Heat to be Picked up by Units	272,840 Btu.
Dehumidifying Outside Air 50 per cent of 11,813 c.f.m. × (128 gr. —78 gr.) × 60 × 1,000 Btu.	
13.34 × 7,000 gr. or	189,773 Btu.
Dehumidifying Moisture Added in Room 400 × 175 Btu. or.....	70,000 Btu.

Total Dehumidifying ..... 259,773 Btu.

Total heat removed per hour for all purposes ..... 532,613 Btu.

TOTAL REFRIGERATION NET.... .....532,613—12,000 or 44.4 tons

Adding 105 for safety..... 4.4 tons

Total refrigerating capacity of units.... 48.8 tons

The units can be arranged as shown in Fig. 5 the two units near the screen taking outside air 100 per cent and the two units near the door recirculating 100 per

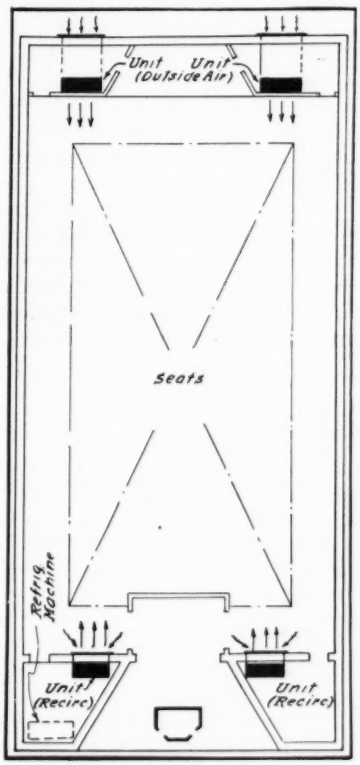


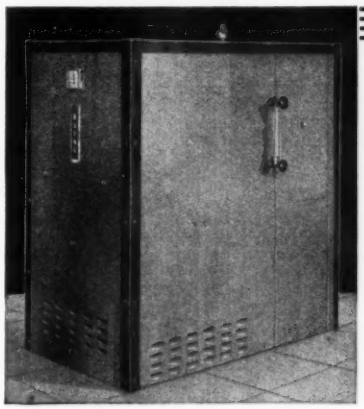
Fig. 5—The units can be arranged as indicated here, with the two units at the screen taking 100 per cent outside air and the units at the door recirculating 100 per cent

cent. Theoretically the units near the stage should have capacity enough to take the outside air, cool it, dehumidify it and reduce it several degrees below the room temperature of 80 deg. Fahr. which has been assumed in order to do cooling in this end of the room. This would mean that, with a total capacity required of about 50 tons, of which

95,646 Btu. for cooling outside air

189,773 Btu. for dehumidifying the outside air

or a total of 285,419 Btu. (which is 285,419/12,000 or 24 tons) should be deducted and the balance of 50 tons minus 24 tons, or 26 tons, should be equally distributed among the four units but the units at the stage would have to be increased 12 tons each to carry the outside cooling and refrigeration load.



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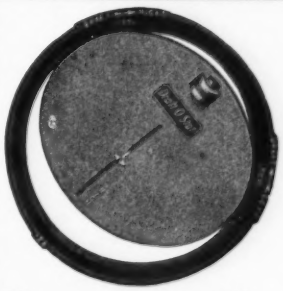

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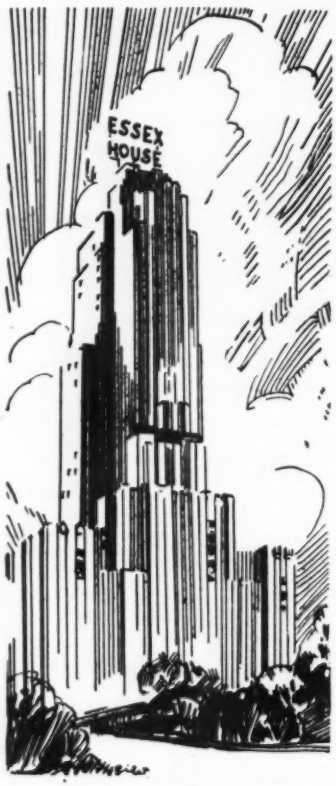

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This gives four units of 24 tons/4 or 6 tons each for the inside load and two of the units (supplying outside air) would have 26 tons/2 or 13 tons additional capacity to provide for the extra load on account of handling outside air.

A much improved arrangement could be made if it were possible to secure a partial outside air supply in the entrance walls for the two units near the door so that all units would handle 50 per cent outside and 50 per cent recirculation air which would equalize conditions to a greater extent and give 4 units of 50/4 or 12½ tons each. It is hardly likely, however, that this air supply would be considered desirable by the operators of the house.

In the case shown the refrigeration machine has been indicated in the space under the stairway to the projection booth and there is some doubt that a machine of this size could be accommodated in the space available. If not two options remain: first, find another location which will accommodate the machine or, second, reduce the cooling done to something that will come within the limits of the space available. For example, if it is a case of reducing sizes or foregoing the installation of cooling, the outside air might be reduced to 25 per cent instead of 50 per cent; the temperature might be held down only 10 degrees in the hottest weather; the humidity might be allowed to go higher under the maximum condition and so on.

Model Home—

(Continued from Page 64)

and economy. By the mere touch of a switch, it may be changed over from a summer cooling system to a heating plant for winter use. Under winter operation,

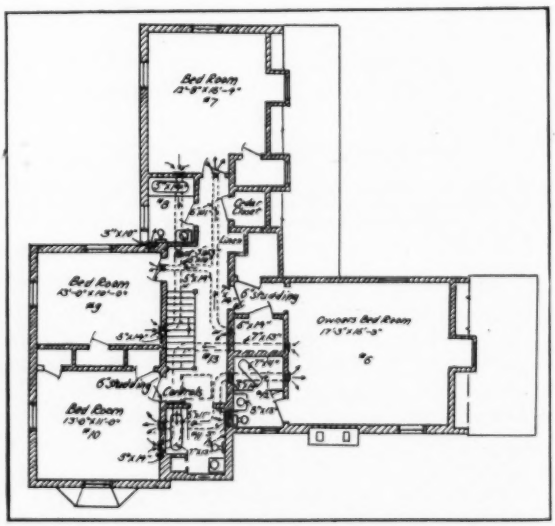

Fig. 10—This second floor plan gives further information as to the air conditioning installation

the relative humidity is adjusted automatically to the most comfortable level, while in summer operation the humidity is lowered automatically so that conditions

of greatest personal comfort are maintained throughout the year.

This air conditioning installation has been designed to be in keeping with every other feature of the dwelling, which is fitted throughout with many devices for lightening household labors, and for creating an environment of genuine home comfort for its occupants.

Oil Rules—

(Continued from Page 65)

that they cannot close off more than 80 per cent of the internal cross section area of the smoke pipe.

(d) Rooms in which oil burners are located shall be provided with adequate ventilation to assure continuous complete combustion of the oil.

(e) Acceptance tests should be conducted where more than one burner is installed in a single combustion chamber or one burner is adapted to two or more combustion chambers, to make sure that the automatic devices for preventing abnormal discharge of oil at the burner will function properly in the event of failure of one or more units to ignite on starting or in the event of flame extinguishment of one or more units during operation.

(f) Complete instructions for the care and operation of the oil burning equipment shall be conspicuously posted near the oil burner.

APPENDIX

From the standpoint of fire hazard, the installation of the boiler or furnace, regardless of the fuel used, is as important as the installation of other parts of the particular fuel equipment.

Smoke pipes of boilers and furnaces should be connected to flues constructed as specified in the Building Code recommended by the National Board of Fire Underwriters.

The clearances between boilers, furnaces, their smoke pipes and combustible materials should not be less than given in the following paragraphs.

Clearances from Boilers and Furnaces. The clear distance between a hot air furnace, hot water or low pressure steam boiler and combustible material, including plaster on combustible base, should not be less than 4 ft. at the top or front, and not less than 3 ft. at the sides and rear; provided that when the appliance is encased in brick or has an incombustible protective covering not less than 1½ in. thick such distance may be 3 ft. at the top and 2 ft. at the sides and rear.

Smoke Pipes. The smoke pipe should not pass through any combustible partition. The clear distance between a smoke pipe or metal breeching and combustible material or construction, including plaster on combustible base, should be not less than 18 in., provided that the clearance may be reduced to 9 in. when the smoke pipe or breeching is protected with not less than 1 in. of asbestos or equivalent protection, or such combustible material or construction is protected by sheet metal or equivalent covering placed at least 1 in. from the surface to be protected and extending the full length of the smoke pipe and not less than 12 in. beyond it on both sides.

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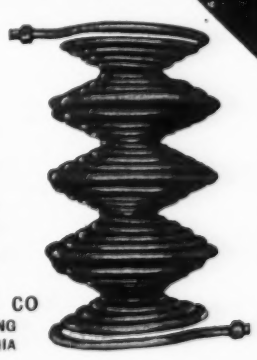

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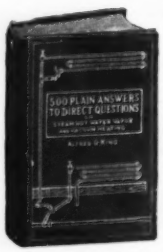

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York Ice Machinery Corporation Holds Annual Sales Meeting

Representatives from 71 branches and sales offices of the York Ice Machinery Corporation attended the annual sales meeting of the corporation at York, Pennsylvania, held recently.

President William S. Shipley, in his introductory remarks at the opening session reviewed the improvement in sales volume during the past year and outlined general plans for the next fiscal period.

S. E. Lauer, general sales manager of the company, was general chairman of the meetings. The speakers were from the several branches, thus inaugurating a new procedure for these meetings, in which the men present had an opportunity to participate in the program. This method of conducting the meetings, according to executives of the company, afforded opportunity for a broader exchange of ideas between the branches and the home office than has been possible at any meeting of the organization held in recent years.

Papers were prepared and read by regional and branch managers, and by the field men, covering their own particular problems, relating to potential markets, sales forecasts, merchandising, sales promotion and advertising plans, for each division of the Company. In addition, papers were prepared and discussions held on recent developments in air conditioning and commercial refrigeration; dairy equipment; accessory and supply equipment.

Among those attending the meeting from out of town were: F. A. Weisenbach, eastern regional manager, Brooklyn, N. Y.; John Schurman, central regional manager, Cleveland, Ohio; W. E. Becker, southern regional manager, Houston, Texas; W. L. Hutton, western regional manager, St. Louis, Mo.; R. H. Beck, regional manager, Pacific Coast area, Los Angeles, California; and 30 branch and sales managers.

Describes Heating Code in Radio Address

WALTER H. OLESON, executive director of the New England region of Heating, Piping and Air Conditioning Contractors Code Authority, spoke over Station WNAC, Boston, on the Yankee Network which covers New England, on November 26, on the Heating, Piping and Air Conditioning Contractors Code. Mr. Oleson reviewed the condition of the heating industry and the construction industry, beginning with 1927 and carrying through to present codified conditions. He also outlined the major features of the Heating, Piping and Air Conditioning Contractors Code.

HENRY W. LLOYD, formerly head of Wykoff, Lloyd Company of Springfield, Mass., has been engaged as the executive secretary of the local administrative agency handling the Heating, Piping and Air Conditioning Contractors' Code in Hampden and Hampshire Counties, Mass., with headquarters in Springfield.

H. E. WHITTEN, heating contractor, in Boston, has been named a member of the Coordinating Committee of the construction industry for the Metropolitan Boston area. Mr. Whitten represents the Heating, Piping and Air Conditioning Contractors Division.

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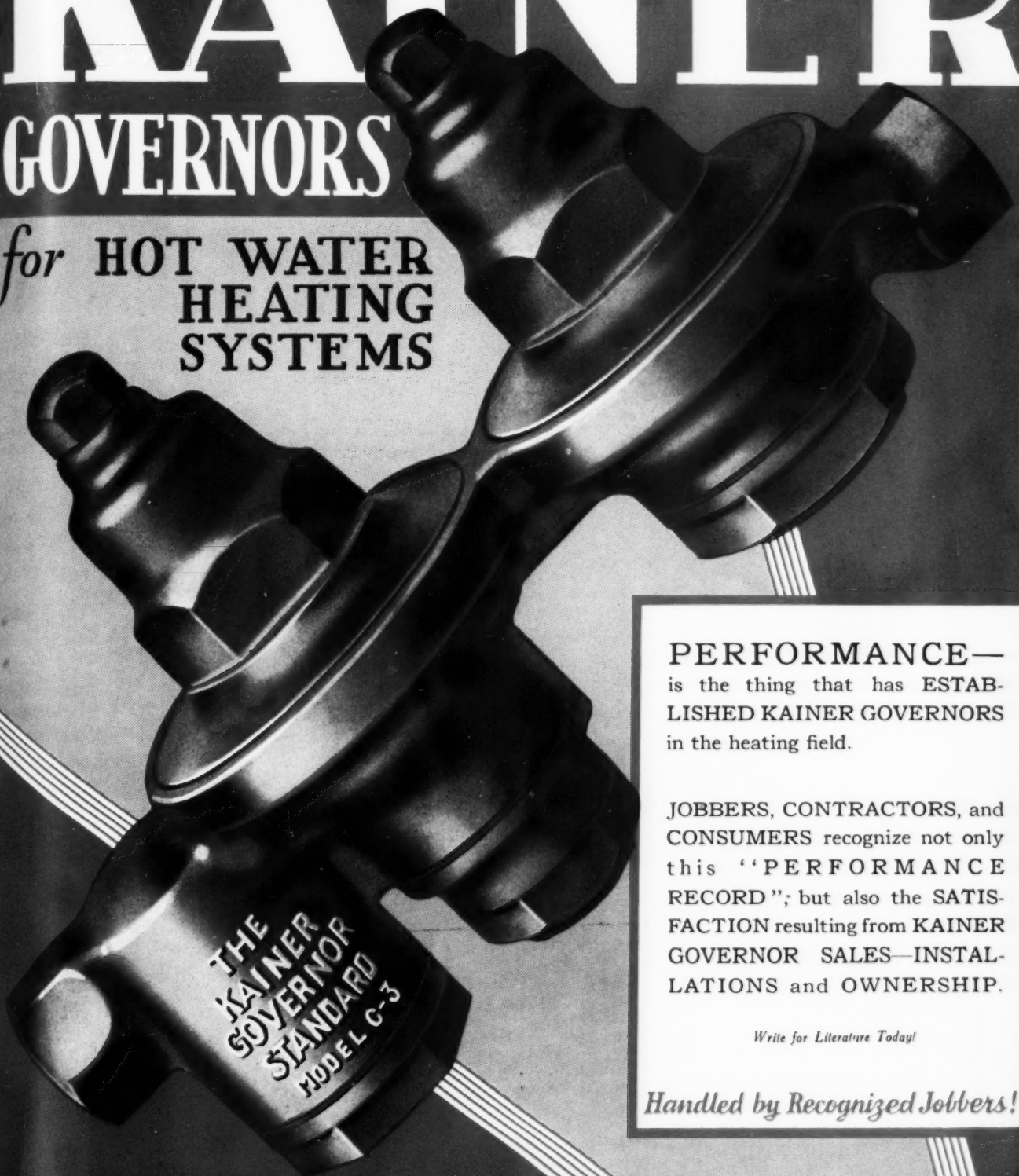

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SUPPLY NEWS

Month's Developments among Manufacturers, Wholesalers and Salesmen in All Sections

Wholesale Distributors Association of Texas Is Organized

The Wholesale Distributors Association of Texas has just been organized under the laws of Texas as a Texas corporation with offices at 310 Mercantile Bank Building in Dallas, Texas. The purpose of the new association is to promote the interests of the wholesale distributing of plumbing supplies, heating supplies, mill and industrial supplies, pipe, valves and fittings, and to increase the facilities of commercial transactions between themselves and their customers, and between themselves and their sources of supply.

The officers of the association are: President, C. G. Singleton, N. O. Nelson Manufacturing Co., Dallas; first vice president, John Cowan, of Clowe & Cowan, Inc., Amarillo; second vice president, C. E. Johnson, Crane Co., Houston, and secretary-treasurer, Howard Weddington, Dallas.

This association will cover the state of Texas, and its activities will be similar to those of the Central Supply Association. It hopes to be of benefit to all the branches of the plumbing and heating industry.

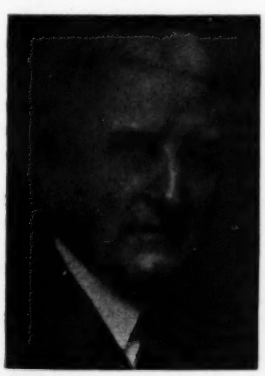
Copper & Brass Research Association Elects Officers

The Copper & Brass Research Association recently held a reorganization meeting at its offices at 25 Broadway, New York City, at which the mining companies withdrew and the fabricating members formulated plans for a promotional campaign for the coming year.

The following officers were elected: President, F. S. Chase, president of Chase Brass & Copper Company. Vice presidents: John A. Coe, president of the American Brass Company; C. D. Dallas, president of Revere Copper and Brass Incorporated; Wylie Brown, president of Phelps Dodge Copper Products Corporation; treasurer, C. T. Ulrich, vice president and treasurer of Kennecott Copper Corporation, and secretary, B. B. Caddle.

Board of directors: F. S. Chase and R. L. Coe, Chase Brass & Copper Company; C. D. Dallas and J. A. Doucett, Revere Copper and Brass Incorporated; John A. Coe and John A. Coe, Jr., The American Brass Company; E. O. Goss and W. M. Goss, Scovill Manufacturing Company; R. E. Day and Herman W. Steinkraus, Bridgeport Brass Company; Wylie Brown and H. A. Staples, Phelps Dodge Copper Products Corporation; C. C. Limbocker, Wolverine Tube Company; C. T. Ulrich, Kennecott Copper Corporation and B. B. Caddle, secretary of the Association.

An operating committee consisting of J. A. Doucett, chairman; R. L. Coe, John A. Coe, Jr., Herman W. Steinkraus and W. M. Goss was appointed.



F. S. Chase

C. D. Dallas

Quaker City Plumbing Jobbers Hold Annual Election

The Quaker City Plumbing Jobbers Association of Philadelphia, Pa., held its annual election on Thursday, December 6, with the following result:

President, Clem Saay, Plumbers Supply Co., Inc., Philadelphia.

Vice president, Jas. Lorber, Jas. Lorber Co., Philadelphia.

Secretary, H. R. Kuehner, H. R. Kuehner Co., Laurel Springs, N. J.

Treasurer, Rufus Palmer, Pennsylvania Range Boiler Company, Philadelphia.

Board of Directors: Chairman, Mark Shapiro, Southwark Plumbing & Heating Supply Co., Philadelphia; Samuel Willis, M. Willis Sons, Philadelphia; Louis Abrams, Germantown Plumbing Supply Co., Philadelphia; M. Arensburg, Kaighn Avenue Plumbing Supply Co., Camden, N. J.; Morris Lehman, M. A. Lehman Co., Philadelphia, and Wm. King, Charles Perkes Co., Philadelphia.

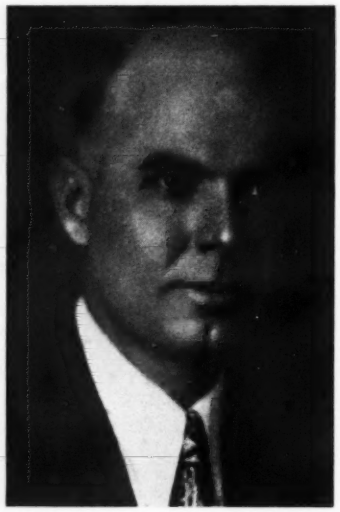
Borden Changes Name to Beaver Pipe Tools, Inc.

The Borden Co. of Warren, Ohio, well known manufacturer of pipe tools, is now operating under the name of Beaver Pipe Tools, Inc. Authority for the change in name was received on December 22 permitting the company to begin its 35th year with a corporate name more descriptive of its business and of its products.

The change is one of name only. W. A. Phillis, vice-president and general manager, of Beaver Pipe Tools, Inc., emphasizes that it will be of advantage to the company as well as a greater convenience to its customers.

Texas Wholesale Distributors Hold First Quarterly Meeting

The first regular quarterly meeting of the Wholesale Distributors Association of Texas was held in Dallas, Texas, on Saturday and Sunday, December 15th and 16th. Membership was represented 100 per cent, with a number of invited guests. In addition to the regular business routine, the Fort Worth and Dallas members were hosts to the others, at a luncheon at the Baker Hotel, on Saturday.



C. G. Singleton
President

Howard Weddington
Secretary Treasurer

The association was called to order by its president, Chas. G. Singleton, who very briefly outlined the organization of the association, for the benefit of the guests. Mr. Singleton said in part:

"We have an association of divisions. Several of the distributors, especially those distributing several lines of merchandise, gave this matter much thought and finally concluded that what we needed in Texas was an association, which could be divided into divisions for distributors of pipe, valves and fittings; industrial mill supplies; plumbing and heating products; hardware; water well equipment and sheet metal. We accordingly organized this association. The divisions will act entirely separate and distinct from the association. While the chairman of the division is presiding over a division meeting, it will make its own rules, pass its own resolutions, and adopt such practices as it sees fit. Meetings of the divisions may be called without calling a meeting of the association. Through such a set-up, we hope to be able to accomplish much for the benefit of the various industries."

During these two days, the divisions of Pipe, Valves and Fittings, Plumbing and Heating, Industrial Mill Supplies and Sheet Metal were completed and division meetings of such were held.

(Continued on Page 117)

Tri-State Wholesalers Hold First Meeting

THE Tri-State Plumbing and Heating Supply Wholesalers Association held its first annual convention at the Manufacturers and Bankers Club in Philadelphia on Wednesday, December 5, and elected the following officers and directors:

President, Wm. A. Brecht, Hajoca Corporation, Philadelphia, Pa.

Vice President, Clem Saay, Plumbers Supply Co., Philadelphia, Pa.

Treasurer, James J. McArdle of McArdle & Co., Inc., Philadelphia, Pa.

Secretary, H. R. Rinehart, 505 Arch Street, Philadelphia, Pa.

Directors: E. G. Carpenter, The Careva Company, Inc., York, Pa.; J. Walter Singmaster, Lehigh Valley Supply Co., Allentown, Pa.; H. R. Stover, Warren Balderston Co., Trenton, N. J.; Samuel H. Hoff, Lycoming Supply Co., Inc., Williamsport, Pa.; Howard L. Murray, H. Belfield Co., Philadelphia, Pa.; M. F. Corcoran, Ralph E. Weeks Co., Scranton, Pa.; David Schrull, George Orlowitz, Inc., Philadelphia, Pa., Edward Fisher, of Fisher Bros., Philadelphia; H. J. Bailey, Desco Corporation, Wilmington, Del.; J. Harvey Borton, Hajoca Corporation, Philadelphia; T. C. Fleming, Crane Company, Philadelphia, and Raymond C. Green, of Raymond C. Green & Co., Jenkintown, Pa.

President Wm. A. Brecht delivered the opening address, in which he gave a clear outline of the task facing the association. He also referred to the importance of the code and urged every one in attendance to participate in a thorough discussion of this vital document.

Hon. Wm. E. Sweet, former governor of Colorado, followed with a most instructive address on "The Work of the National Recovery Administration."

A. E. Walker, general manager of sales, Republic Steel Corporation, was the next speaker. His address covered the main points of the American Iron and Steel Code Authority.

J. S. Mattimore, vice president of Walworth Company, addressed the convention on the subject of the Valve and Fittings Manufacturing Industry Code Authority.

Otto G. Hitchcock of Hays Manufacturing Company of Erie, Pa., followed with an address on the Plumbing Fixtures Industry Code Authority, which he concluded by saying: "With the return of better business, many of the present day problems and practices will automatically eliminate themselves, but in the meantime, to insure as much stability and soundness in business as is possible, we must learn how to work together and develop confidence in one another. Only in this way can be hope to set up a united defense against the tearing down of American business, and establish code regulations that will insure better relations for the future."

Max D. Rose represented M. J. Beirn, vice president of the American Radiator and Standard Sanitary Corporation, and reported on the Boiler and Radiator Industry Code Authority. He closed his address on an optimistic note as follows:

"Conditions in general in our industry are good today. In many sections of the country, and among the metropolitan territories, prices are good. All future delivery orders have been eliminated and cancelled, and the current sheet is in effect. The primary market is almost 100 per cent. That the secondary market in many sections of the country is not so good, is because you, gentlemen, have no code, and there has been no resale clause in our code.

"We have great hopes for next year. We foresee a substantial construction program. There appears to be a chance for substantial increase in volume and an opportunity for profits. Now, let's go forward with this work."

N. J. Higginbotham, president of the New York State Association of Wholesalers of Plumbing and Heating Supplies, and A. M. Behrer, President of the Jobbers Credit Association, Inc., also delivered instructive addresses on codes and the advantages of supply associations.

This was followed by discussions on the Code of Fair Competition for the Industry of Wholesaling Plumbing Products, Heating Products and/or Distributing Pipe, Fittings and Valves.

These discussions were led by President Wm. A. Brecht, E. G. Carpenter of the Careva Co., George Shea, counsel for Temporary Code Authority, and Charles Carrigan of the National Recovery Administration.

Wholesalers in Southwest Form New Association

Wholesalers in West Texas, New Mexico and Arizona have organized the Southwestern Wholesale Distributors Association. The main objective just now is to have that area set up as a separate code division rather than being divided among other established divisions of the general wholesale code.

This new association includes wholesalers of plumbing supplies, hardware and kindred lines, mine and industrial supplies and also steel and steel fabricators. The offices of the secretary are in El Paso, Tax.

The officers of this new association are: President, Charles Proebstel, Santa Fe Builders Supply Co., Santa Fe, N. M.; Vice President, Gus Momsen, Jr., of Momsen, Dunnegan, Ryan Co., El Paso, Tex.; Secretary-Treasurer, R. C. Bower of Standard Sanitary Mfg. Co., Phoenix, Ariz. Benjamin Sherrod is acting secretary-treasurer at the El Paso headquarters.

The present membership of the organization is as follows: Arizona Hardware Supply Co., Phoenix, Ariz.; Pratt-Gilbert Hardware Co., Phoenix, Ariz.; Crane Co., Phoenix, Ariz.; Crane Co., Tucson, Ariz.; Albert Steinfeld & Co., Tucson, Ariz.; Standard Sanitary Mfg. Co., Phoenix, Ariz.; Standard Sanitary Mfg. Co., Tucson, Ariz.; Standard Sanitary Mfg. Co., El Paso, Tex.; Crane-O'Fallon Co., El Paso, Tex.; Crane-O'Fallon Co., Albuquerque, N. M.; Momsen, Dunnegan, Ryan Co., El Paso, Tex.; Mine & Smelter Supply Co., El Paso, Tex.; Darbyshire-Harvie Iron & Machine Co., El Paso, Tex.; Zork Hardware Co., El Paso, Tex.; Santa Fe Builders Supply Co., Albuquerque, N. M.; Santa Fe Builders Supply Co., Santa Fe., N. M.; Chas. Ilfeld Co., Albuquerque, N. M.; J. Korber & Co., Albuquerque, N. M.

The above wholesalers feel that they operate as a strongly competitive group in an area isolated by tremendous distances from any other trading area. They point out that Denver to the north is 400 miles from the northern boundary of the area served by this new association; Los Angeles is about 400 miles west of the western boundary, while Fort Worth, Tex., 600 miles away, is the nearest eastern competitive point. Because of this, the wholesalers object to having portions of this area attached to Denver, other portions to the west coast and a third portion to the Oklahoma-Arkansas-Texas Division.

The annual meeting of this new association will be held in El Paso early in February.

George H. Lang Elected Vice President of J. A. Zurn Mfg. Co.

George H. Lang has just been elected vice-president of the J. A. Zurn Manufacturing Company of Erie, Pa., and will take charge of the sales of this company's products, including cast iron plumbing specialties such as sink traps, floor drains, waste and vent fittings, etc. Mr. Lang also

George H. Lang

plans to introduce some new ideas in drainage and vent systems which have been in process of development for the past several years.

Mr. Lang was formerly associated with the W. G. Cornell Co., S. Faith Co., and Thompson Bros., plumbing contractors in the Philadelphia district, and also with Fleck Bros. Co. of Philadelphia. For the last nine years he represented the Josam Manufacturing Company of Michigan City, Ind., and Cleveland, Ohio, as district manager with headquarters in Philadelphia.

This wide experience with the plumbing industry over a period of twenty-one years, covering all stages from apprentice to contractor, sales engineer, manufacturer and sales manager, supplies the background upon which Mr. Lang can draw in meeting the requirements of his new position.

The Ninth Annual Dinner of the Jobbers' Credit Association, Inc., New York City

Wholesaler Will Open Branch House in Bryn Mawr, Pa.

The Plumbers Supply Company, Inc., of 5241 Wakeling street, Philadelphia, Pa., is making arrangements to open a branch at 509 Lancaster avenue, Bryn Mawr, Pa., January 1, 1935, according to announcement just issued by Clem Saay, president of the company. George Ritzinger, formerly manager of the Bryn Mawr branch of Fleck Bros. Co., will be manager of the new branch, and Jack Ball, also formerly connected with Fleck Bros. Co., will cover the territory of the new branch.

New Jersey Manufacturer Opens Warehouse in Los Angeles

The Thomas Devlin Manufacturing Company of Burlington, N. J., has opened a new warehouse in Los Angeles, Calif., to serve the jobbers in the territory surrounding that city. This warehouse is located at 940 Alameda Street, and is under the direction and management of Howard Fletcher. The warehouse itself is a one-story building with a front of 50 ft. and a depth of 200 ft.

Important Advancements and Additions Mark Reading Iron Co.'s New Year

Important promotions within its ranks, as well as additions to its sales force, mark the beginning of the new year for the Reading Iron Company, of Reading, Pa.

C. T. Ressler, formerly manager of railroad and marine sales, is appointed specification engineer of the Sales Division. His headquarters will be at 401 North Broad Street, Philadelphia.

R. I. Fretz, formerly district sales representative, with headquarters in Columbus, Ohio, is appointed manager of eastern railroad and marine sales, with headquarters at 401 North Broad Street, Philadelphia.

C. W. Guthrie, formerly salesman in the New York District, with headquarters in New York City, is appointed district sales representative for the Columbus territory.

Bryant Myers joins the company's Pacific Coast sales force. His headquarters will be at 213 Sheldon Building, San Francisco, and he will work under the supervision of J. K. Aimer, manager of sales, Pacific Coast region, whose headquarters are at Los Angeles.

F. B. Olcott is appointed special representative for the purpose of handling Government business, and his headquarters are at 220 Mills Building, Washington, D. C.

C. H. Leibfried Mfg. Corp. to Celebrate Its Fiftieth Anniversary

C. H. Leibfried Manufacturing Corporation of 97, 99 and 101 Guernsey Street, Brooklyn, N. Y., manufacturer of pipe hangers, pipe rests and hooks, vise stands and other iron and steel products, will celebrate its fiftieth anniversary in January, 1935. The business was started in 1885 by J. J. Leibfried, father of the present owner, on the site on which the present plant is located. The original buildings were replaced by new ones about three or four years ago.

The company will hold open house to the trade during the month of March, according to President Leibfried.

Brass Maker Now Located in a Much Larger Plant

The Schaible Foundry & Brass Works Company, manufacturers of plumbers' brass goods in Cincinnati, Ohio, has just moved its manufacturing plant from Dane and Knowlton Streets to 1086-1098 Summer Street in that city. The new plant consists of a two-story building with ten thousand square feet on each floor. A large quantity of new equipment has just been installed. The Schaible Company has been in existence about twenty years.

Fletcher-Weil Co. Moves to Larger Quarters

Fletcher-Weil Co. of Los Angeles, Calif., has moved its warehouse to a new and larger building at 940-950 South Alameda Street in Los Angeles. Fletcher-Weil Co. is distributor of the products of Fretz-Moon Tube Co. of Butler, Pa.

Attracted More Than 700 Representatives of Manufacturers and Wholesalers

Jobbers' Credit Association, Inc., Holds Ninth Annual Dinner and Dance

An outstanding social affair of the season in New York City is the annual dinner and dance of the Jobbers' Credit Association, Inc., and this year's event, the ninth, was no exception.

This formal affair was held at the Hotel Commodore in New York City on Saturday evening, December 1, with more than 700 persons in attendance, representing all branches of the industry, mainly representatives of manufacturers and wholesalers. The dinner attracted many of the prominent men in the Eastern plumbing and heating field.

An excellent dinner was followed by dancing, while during the dinner and between dances the guests were entertained by a floor show of the highest order.

The officers of the association are: President, A. M. Behrer of Behrer & Co., Inc.; first vice-president, T. Arthur Johnson of J. D. Johnson Co., Inc., second vice-president, Henry D. Gasner of Saltser & Weinsier, Inc., treasurer, Mortimer H. Smolka of E. Smolka Plumbing Supply Co.; secretary, Glenn B. Van Buren.

The members of the entertainment committee were: E. E. Basch, chairman; Frank G. Baumann, Elmer Doolittle, Henry D. Gasner, Milton M. Goldsmith, John Harmon, T. Arthur Johnson, E. F. Keating, V. H. Kincaid, M. Meyerowitz, Leo M. O'Neil, J. P. Rogers, Edward Schwartz, Joseph Simmons, and Mortimer H. Smolka.

This committee is to be congratulated on the entertainment provided and the way its members handled every detail of this big social gathering.

Plumbing and Heating Industry Is Well Represented in Exhibitors Council

The board of directors of the Exhibitors Advisory Council, Inc., has just held its annual meeting, at which officers were elected for the new year. Among representatives of the plumbing and heating industry who will serve in 1935 are: J. F. McNamara of the International Nickel Co. of New York City, who was elected secretary; J. C. Matchett, vice president of Illinois Engineering Company, Chicago, and H. M. Shakelford, sales promotion manager of Johns-Manville Corp., New York City, who were elected members of the board of directors.

The Exhibitors Advisory Council, which is entering its ninth year of show service to industrial and trade show exhibitors, is composed of important industrial companies that are interested in improving conditions relating to shows and exhbits. Its headquarters is located at 330 West 42nd street, New York City.

Appointed Sales Agent for the Waynesboro Nipple Works, Inc.

The Waynesboro Nipple Works, Inc., Waynesboro, Penna., manufacturer of steel, iron and brass pipe nipples, has appointed Surpless, Dunn & Co. of New York and Chicago, as its general sales agent for the United States, Canada and in the export market. This sales agency will cover the plumbing supply trade from its New York office at 74-76 Murray street, and its Chicago office at 34 North Clinton street.

Hedges-Walsh-Weidner Co. Opens Offices in Chicago

The Hedges-Walsh-Weidner Company of Chattanooga, Tenn., has just opened an office at 1930 Bankers Building, 208 South Clark Street, Chicago, and a warehouse in East Chicago, Ind. Frank P. Murphy of Cleveland, Ohio, who has been associated with the Hedges-Walsh-Weidner Company for the past twelve years, has been transferred to Chicago to take charge of the new office and warehouse, which will serve the Middle West.

Frank P. Murphy

Appointed Sales Manager for Anchor Products Mfg. Co.

Anchor Products Mfg. Co., 30 Church Street, New York City, announces the appointment of J. Frank Link as sales manager. Mr. Link for 12 years was with the Steele & Johnson Mfg. Co., a subsidiary of Chase Brass Co., as sales representative serving the New York Metropolitan area.

Appoints New Sales Representatives in Chicago and Milwaukee

C. W. Farrar, president of the Excelso Products Corporation, Buffalo, N. Y., manufacturers of indirect water heaters, direct heaters, cleaning valves and tools, announces two recent additions to its sales organization: J. G. Gregory & Company, 1917 Builders Building, 228 North LaSalle Street, Chicago, have been appointed district representatives in Northern Illinois, and Howard F. Haupt, 614 East Beaumont Avenue, Milwaukee, Wis., has been appointed district representative in the Milwaukee and Wisconsin territory. They will sell to the jobbing trade.

The Excelso company continues to maintain its own representation in these territories.

Agnew, Pelletier & Tomlinson in New Quarters

Agnew, Pelletier & Tomlinson have just announced the removal of their office to 507 Fifth Avenue, New York City.

Will Represent Josam Mfg. Co. in Philadelphia District

Charles G. Wall

Charles G. Wall has just been appointed Philadelphia District representative for the Josam Manufacturing Company of Michigan City, Ind., and Cleveland, Ohio, to succeed George H. Lang. Mr. Wall has been identified with the plumbing manufacturing field for eighteen years. A large part of this time was spent in the service of the Sloan Valve Company in Chicago and New York. Recently he has been connected with the Standard Sanitary Manufacturing Company in New York City. The Josam Mfg. Co.'s branch office will remain as heretofore at 401 North Broad Street, Philadelphia.

Build a Home in 3 Days?

Sloan says it can be done

MANY large corporations, new to the building field, but outstanding in the automobile, electrical, steel and other industries, have revealed in recent months that they were making a serious study of the small home market. Such announcements naturally disclose that their approach to this market is from the direction of a manufacturer trained in terms of factory production of standardized units.

Alfred P. Sloan Jr., president of General Motors Corporation, is recognized as a student of business trends and the fact adds interest to his following comments on the small home market, abstracted from his article "The Forward View" in the *Atlantic Monthly* recently:

"From many sources interested in these new housing developments come details which group themselves into this composite picture of the new housing. A house can be erected in three days' time from the breaking of the ground for cellar excavation to completion for occupancy. In this short period the lot will be graded and planted with shrubbery, and connections made with public services, such as sewers and electricity. The house will be air-conditioned, with all facilities for heating, cooling, humidifying, drying and washing the air its inhabitants breathe. It will have all modern conveniences for reducing housework, on a scale and of a variety not surpassed in the costliest mansions of the day. Its equipment will include special devices for bringing instruction and recreation into the home—the teletype for news dispatches, television apparatus to portray the world's great events as they occur, and radio sets embodying visual projection, so that motion pictures and operas can be brought directly to the view of the home circle.

MUST BE STANDARDIZED HOUSE

"The cost of these thoroughly modern homes will vary, of course, not only with their size and equipment, but also with the quantity of them which can be produced and sold. The first house in any given series will be one of the most expensive houses ever built, because its completion must entail all the planning, tooling, and factory organization common to the whole series. Just as the automobile buyer, by accepting a standardized product, gets for a few hundred dollars a car on which millions have been spent, so the house buyer, by accepting a standardized dwelling, will reap a tremendous price advantage through the pooling of costs under mass production. It is estimated that a small house, the equivalent in size of a present-day workingman's cottage, can be fabricated, erected, furnished, and completely equipped as indicated above for considerably less than the cost of erecting a wooden house, unfurnished, and with none of the electrical devices and service connections mentioned. Also the pre-fabricated house will be durable and fireproof, with decreased charges for upkeep and insurance.

"The various plans to achieve this drastic housing reform, with all that it means in erasing slums and strengthening home life, are great adventures in hope and faith as well as in technics and finance. They involve large-scale operations in credit, factory organization, transportation of materials and localized assembly. While they could hardly have been visioned except for the development of materials and methods used in automobile manufacture and assembly,—notably mass production of interchangeable parts, the use of new metallic alloys, and the wider application of installment credit,—in one respect the pre-fabricated house business must break new ground. Its products must be assembled on the site and not in the factory; but after all it is as easy to transport skilled house assemblers as it is to transport their materials, and every new development in transportation henceforth will assist house construction on the new basis."

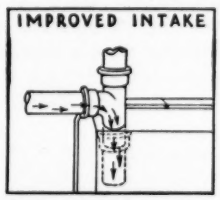
Jenkins Bros. Declares Accumulation Dividend

Jenkins Bros. of New York City have declared an accumulation dividend of $8.75 on the 7 per cent preferred stock, and the dividend was paid December 31 to stock of record December 15. After this disbursement the balance of overdue dividends is now $15.75 a share.

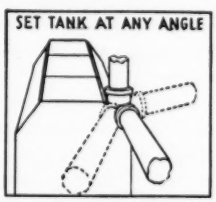
Dealers Say:

The MASTER SEPTIC TANK is a Proved SUCCESS

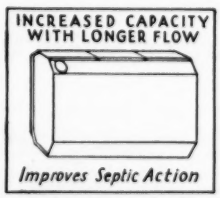
ITS SUCCESS IS DUE TO THESE FEATURES



The top intake of the Master Septic Tank allows sewage to enter the tank more rapidly—tending to keep the intake baffle clear and effectively reducing the possibility of clogging at that point.

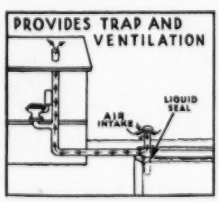


Use of T-type intake allows tank to be set at any angle to house line. This simplifies installation where the space available or slope of ground limits location of tank and drainage field.

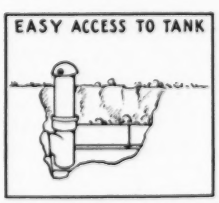


The horizontal type construction provides a longer flow for sewage within the tank—permitting thorough digestion and settling out of solids. Less suspended solid particles to clog drainage and a safer effluent.

Excavation for the Master Septic Tank is but slightly larger than the tank itself. Thus installation is much easier and more economical than for a tank where lack of shovel room makes extra digging necessary.



The intake T extends above ground to provide a fresh air intake to the house stack. It also extends below the liquid level in the tank to seal the line against escaping gases. No other trap or vent is required.



The intake extension above ground marks the tank location and also provides access to the intake baffle without digging. For inspection of the tank the sectional cover is easily removed without uncovering entire tank.

It has put PROFIT back into Septic Tank Sales

"FRANKLY, I was skeptical," one plumbing dealer writes, "about the claims you made for the Master Tank. My competition had been forcing me to almost give septic tanks away. Anything was worth trying, so I started talking up the advantages of the Master Tank. I am pleased to report that my customers were immediately interested in these features and that more and more of them have been buying Master Tanks. I have made money on these jobs. My customers have been completely satisfied. Price hasn't seemed to make much difference. The Master Tank has certainly helped my business."

Reports like this are coming in from all over the country. The exclusive features, illustrated on this page, make the Master Tank easier to sell, install and service. These features are found in no other septic tank. They are the result of long and successful experience in the manufacture of sewage disposal systems.

The Master Tank is now a proved success. Use it to overcome troublesome cut-price competition. Use it for more dependable disposal. Use it to make a decent profit on your septic tank installations. Ask your jobber to show you this new tank. Write today for complete information.

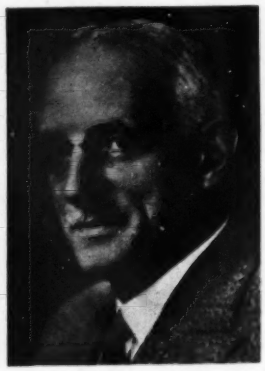
SAN-EQUIP INC.
501 E. Brighton Ave., Syracuse, N. Y.

San-Equip
SEWAGE DISPOSAL

COMPLETE DETAILED INFORMATION ON REQUEST

Worthington Pump & Machinery Corp. Opens Office in Los Angeles

The Worthington Company, Incorporated, of Harrison, N. J., has recently established a regional headquarters in Los Angeles, Calif., under the direction of an executive officer of the company. This new headquarters will supplement the efforts of the present district offices and unite with them for service to the growing volume of business in the West. C. E. Wilson, vice president, is in charge of this Pacific Coast Division and has moved his office from New York to the new headquarters at 510 West Sixth Street, Los Angeles.



C. E. Wilson

Mr. Wilson has filled many important offices in the various departments of the former George F. Blake Manufacturing Company and its successors, which subsequently became a part of Worthington. After a considerable period in charge of sales in the Central District of the country with headquarters in Chicago, Mr. Wilson returned to New York as assistant general sales manager in charge of foreign and export business, in which capacity he traveled extensively in Europe and South America. He was made general sales manager in 1923, and was elected a vice president of the corporation in 1932. He has for a long time been in close touch with the Pacific Coast activities of the Worthington Corporation.

San Francisco Plumbing & Heating Club Holds Successful Christmas Party

Headed by a mammoth golf tournament, the Sixth Annual Hi-Jinks of the San Francisco Plumbing & Heating Club, held at the Millbrae Golf and Country Club on December 14th was a huge success.

A turkey dinner and an elaborate cabaret show was presented after members and guests tucked away their clubs, these activities tending to make this the greatest Christmas party yet presented by this organization.

A record representation of all three branches of the industry were kept in a merry mood due to the well-laid plans of the committee men, W. H. Rainwater, Elmer K. Ross, H. Sales and R. J. Fuite, who had things "buzzing" throughout the celebration.

A fine assortment of golf and door prizes were presented by the following firms. American Radiator Co., Bethlehem Steel Co., Columbia Steel Co., Crane Co., Fretz-Moon Co., Grinnell Co., Jones & Laughlin Steel Corp., Bryant Heater Co., McCormick Steamship Co., P. E. O'Hair & Co., Tay-Holbrook, Olsen & Heffernam, Pacific Plumbing & Htg. Supply Co., Quaker Line, Republic Steel Corp., Richmond Sanitary Co., James A. Riordan Co., Inc., Spang Chalfant & Co. Inc., Standard Sanitary Mfg. Co., United Pipe & Supply Co., U. S. Radiator Corp., Walworth-California Co., Wheeling Steel Corp., Youngstown Steel & Tube Co., C. F. Church Mfg. Co., General Electric Co., Kohler Co., Meneley-Diederich Co. Inc., and the Republic Brass Corp.

Prize winners in the golf tournament were: Class A—low gross—T. Mixter, R. J. Fuite, F. F. Elliott. Low net: J. Camp, F. Derbyshire, R. Clark. Class B—Low gross: F. Mosher, J. Heil, C. P. Hensley. Low net: G. Gobbert, D. O'Hair, W. Lane. Guests—Low gross: L. G. Fairbanks, N. Brown. Low net: J. Gainer, R. Beard.

The featured handicap added zest to the tourney, keeping the entrants under pressure on all tees. J. Camp and R. J. Fuite were the low net men in this handicap and were "owned" by R. P. Olsen and J. N. Miller respectively.

The results of the golf handicap were as follows:

	G.	H.	N.		G.	H.	N.
Camp, J.	81	11	70	Blair, B. F.	105	25	80
Fuite, R. J.	85	15	70	Felming, J.	98	16	82
Mixter, T.	80	11	71	McLeod, J. J	97	13	84
Clark, R.	89	16	73	Nickerson, F.	103	19	84
Mosher, F.	90	17	73	Heieck, E.	94	9	85
O'Hair, D.	94	19	75	Taylor, W. A.	102	16	86
Woodson, W.	90	14	76	Olsen, R. P.	111	25	86
Elliott, F. F.	86	9	77	Petersen, C.	105	17	88
Hensley, C. P.	98	20	78	Greer, J.	111	18	93
Scott, W., Jr.	87	9	78				

Plumbing and Heating Represented on Durable Goods Committee

E. O. Goss of the Scovill Mfg. Co., Waterbury, Conn., was chairman of an organization committee for the Durable Goods Industries which served at their meeting at Hot Springs, Va., recently. Among those appointed to serve with him were Rolland J. Hamilton, president of the American Radiator Company of New York City, and Thomas F. Hammond, president of the Whiting Corporation of Harvey, Ill. Rolland J. Hamilton was also made a member of a finance committee, which was appointed to procure the necessary financial resources for the activities of the Durable Goods Industries Committee.

Among those who were elected as members of a new Durable Goods Industries Committee to serve until their successors are elected, but not longer than one year, are the following: Lewis H. Brown of Johns-Manville Corporation of New York City, and Walter J. Kohler, president of Kohler Company, Kohler, Wis.

Reuben A. Tate Dies After A Month's Illness

Reuben A. Tate, president and general manager of the Utica Plumbing Supply Company, Inc., of Utica, N. Y., died at his home in that city on Monday, December 10, in his 69th year, after one month's illness. Mr. Tate was born in Toledo, Ontario, and came to this country as a young man. After having been connected with Charles Millar & Son Co. of Utica, N. Y., as traveling representative for several years, he served as manager of a sales branch of Hart & Crouse Company of Utica, N. Y. After leaving this position he established the plumbing and heating supply business of the Utica Plumbing Supply Co., Inc., in Utica, N. Y., on January 1, 1914. Mr. Tate was president of the Eastern Supply Association from October, 1927, to October, 1928. He also was president of the Utica Chamber of Commerce in 1922 and 1924. He was active in the Masonic fraternity as well as in several other fraternal organizations.

Reuben A. Tate

F. E. Georgia of Oklahoma Called by Death

F. E. Georgia

F. E. Georgia, president of the F. E. Georgia Supply Company of Oklahoma City, Okla., died recently at his home in that city of bronchial pneumonia in his 58th year. Mr. Georgia was born in Deshler, Ohio, in 1876, and had made his home in Oklahoma City since 1916. Before that he had been connected with the Kansas City branch of Crane Company, and he was manager of the Oklahoma City branch of Crane Co. until 1927, when he started his own business in that city. He was a member of the Masonic fraternity, the Kiwanis Club, the Oklahoma City Golf and Country Club, and Oklahoma University Club. He is survived by one brother, Ralph R. Georgia of Anderson, Ind., who is making arrangements to take over and continue the F. E. Georgia Supply Company with its present organization.

Texas Wholesalers—

(Continued from Page 110)

Some of the problems of the Pipe, Valves and Fittings Division, which were discussed, were as follows:

(1) Spread between the retailer and consumer on steel and wrought iron pipe. The division thought there should be some difference, perhaps 10 per cent.

(2) The division believes that the distributors are being hindered by the manufacturers of valves and fittings, allowing full freight on direct shipments, with a minimum weight of 300 pounds. The division believes that a minimum of 1,000 pounds is low enough and that a maximum of 25 per cent off on direct shipments would be fair to the distributors, manufacturers and their consumer.

(3) The division favored "cuts and threads" being figured on a "cut and thread basis" rather than on either "time" or "labor" basis.

The Industrial Mill Supply Division believed that manufacturers of mill and industrial supplies can and should distribute their goods through the mill supply jobber. Also manufacturers of certain items, who have been selling direct, and yet have distributors of their products, are not treating the mill supply jobbers fair and the Division urged that the manufacturers should allow them a large enough spread between the distributors and consumers, so that their goods could be sold by and through the mill supply distributors.

The Plumbing and Heating Division unanimously adopted and recommended the continuation of the old line method of distribution — "manufacturer - distributor - contractor - consumer."

This division also went on record as wanting to co-operate and assist the plumbing contractors in any way possible to better the plumbing and heating industry and asked suggestions from the plumbing contractors, suggesting that such recommendation be taken up with the secretary of this division by a representative of the contracting plumbers.

The division condemned "false billing" by either distributor or contractor and the practice of some contractors in giving away commissions allowed by distributors.

The division believes that it is not the job of the dis-

☆

Typical American Beauty

Typical American Quality

☆

REFLECTED in these two **American** Basin Faucets are the outstanding beauty . . . the inherent quality . . . so typical of the **American** Brass Goods Line. Here are two items which the plumbing contractor may confidently recommend to the customer who will not tolerate fixtures of questionable merit because, for nearly twenty-five years, **American** Brass Goods have been satisfying just this type of customer.

The **American No. 900 BASIN FAUCET**
As dependable in service as it is attractive in appearance.

AMERICAN SANITARY MFG. CO.
ABINGDON ILLINOIS

The **American No. 901 BASIN FAUCET**

Ideally suited to the installation where the requirement is for a faucet of medium depth.

☆

For the new installation or the remodelling job . . . specify **American** Brass Goods. Order **American** Brass Goods through your jobber.

☆

JARECKI VALVES

JARECKI MANUFACTURING CO. Erie, Pa.

tributors to allow freight to non-jobbing points, nor to deliver merchandise to non-jobbing points. It was their opinion that this item of expense is not set up by the manufacturers and if such practice should develop, the manufacturers should make an allowance for such added expense.

The Sheet Metal Division felt that the narrow spread between car load buyers and jobbers cost was not sufficient and that the manufacturers should widen this spread.

The Association voted unanimously to hold the next quarterly meeting at San Antonio, Texas, on March 15 and 16, 1935. There was no election of officers at this meeting, since the officers will be elected at the annual meeting in September or October.

In a Personal Way

RUSSELL DOUGHERTY, who has been with the National Radiator Corporation for the past 20 years, has been appointed Chicago district manager to succeed Ed Casey.

JACK SQUIRES of Central Tube Company's Philadelphia office, CURTIS SINCLEAR of Speakman Co., Wilmington, Del., and W. J. BUSSER of Busser Supply Company, Lewisburg, Pa., have just returned from a hunting trip to Carson Run in the vicinity of English Center, Pa., on which Mr. Squires had the good fortune to bag an eight point deer.

J. J. LANDERS has been appointed sales representative for the Jas. P. Marsh Corporation of Chicago, Ill., with headquarters at 303 Crosby Building, Buffalo, N. Y.

R. W. BECKER, formerly with the Flint & Walling Manufacturing Company of Kendallville, Ind., has been appointed sales representative for J. B. Wise, Inc., of Watertown, N. Y., with headquarters at this concern's eastern sales office, 41 East 42nd Street, New York City.

SEWARD BEST of Quincy, Ill., has recently been appointed to the staff of the Federal Housing Administration director for the southern Illinois zone, with headquarters at Springfield. Mr. Best is a former president of the Quincy association as well as a past president of the Illinois Master Plumbers' Association. Mr. Best was chairman of the 41st annual convention of this association held last year at Quincy. At the recent meeting of the board of directors he was elected to honorary membership in recognition of his past services.

G. R. ENGLIN, formerly secretary-manager of the Master Plumbers Association of Galesburg, Ill., has been appointed secretary-manager of the Master Plumbers' Association in Rock Island, Ill., with offices at 1901½ Second Avenue in that city.

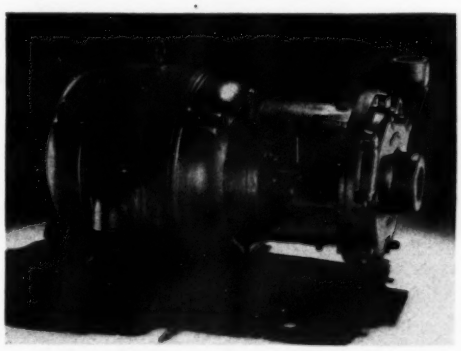
Montgomery County Plumbers Hear Talk on Tubing

The Master Plumbers' Association of Lower Bucks and Montgomery County, Pa., held its regular monthly meeting on Wednesday evening, December 5, at "The Barn" in Doylestown, Pa., with a good attendance. C. W. Reeves, chairman of the educational committee of the Association, introduced Martin F. Pilger, plumbing representative of the Bridgeport Brass Company of Bridgeport, Conn., who gave an interesting and instructive talk on the many uses to which copper water tubing can be applied. He also explained how it can be used in connection with various types of fittings in both the hard and the soft state.

NEW STORE·SHOP *and* JOB ITEMS

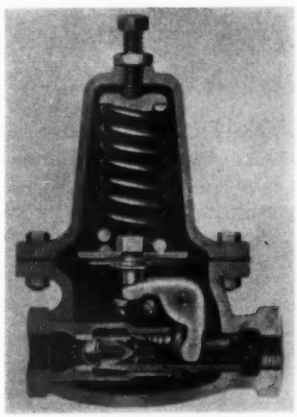
A Built Together Motor Pump Unit

The pump shown in the accompanying illustration has been placed on the market for service in buildings, industrial plants, public utilities and similar places, and as a built-in unit on assembled equipment such as bottle washing machines, air conditioning units, etc. The unit is described as having been built together to conserve space, to facilitate its installation and to reduce weight and maintenance. The unit consists of a centrifugal side suction pump with an enclosed bronze impeller mounted directly on the shaft of a ball bearing splash-proof type motor. The shaft runs on two ball bearings which are made to require lubrication only once or twice a year. The unit is described as capable of being placed in any position and at any angle to fit the application. These units are available in capacities from 10 to 250 gal. per minute and for heads up to 190 ft. with motors rated from ¾ h.p. to 10 h.p. to meet the requirements of a wide range of applications. Fairbanks, Morse & Co., located at 900 South Wabash Ave., Chicago, Ill., is the manufacturer.



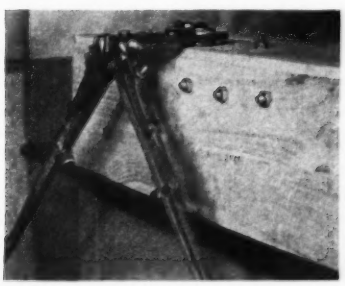
Pressure Reducing Valve

Here is a pressure reducing valve which has just been placed on the market. It is described as having a large capacity and as being designed so that it will not wiredraw or stick. It has been made with a stream line appearance and is available in various trims. The valve proper has a blunt nose and a trailing edge with the idea that no matter how high the velocity, the trailing edge can pull no vacuum to retard the flow. The purpose of this stream line contour is to insure a maximum capacity. The fluid flows through the valve in a straight line to eliminate turbulence or hindrance to maximum flow. A jet extends into the outlet chamber. When the demand increases, an accelerated flow through this jet produces an aspirating effect that lowers the pressure in the control chamber (below diaphragm) and thus opens the valve wide to meet peak demand. When the diaphragm moves in a closing direction, the valve proper is made to close because it is tied to the diaphragm by means of the cam lever. It is pointed out that since the valve closes against the pressure of the in-flowing fluid, it will not chatter. A. W. Cash Co., Third and Eldorado Sts., Decatur, Ill., is the manufacturer.



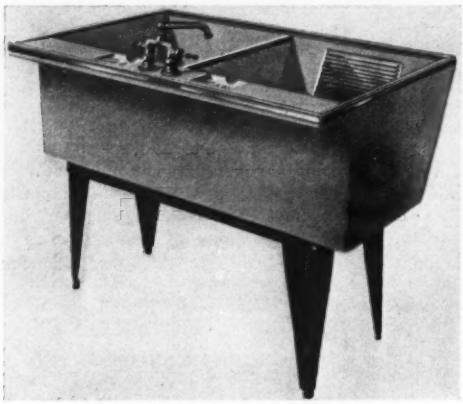
A Swivel Bolt Clipper

Announcement has just been made to the effect that the swivel head bolt clipper shown in the accompanying illustration is now on the market. The tool is made to work



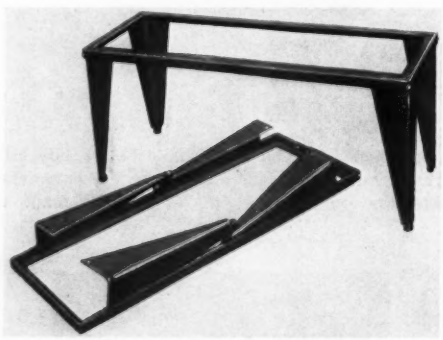
equally well up or down, right or left, behind or before, and in and out, because the cutting head swivels to any angle on either side of the handles from nothing to a right angle.

A special section is joined by a ball and socket joint with a shoe for holding the cutter head and a positioning spring for holding the head in the desired position. The shoe is made to hold any standard head of a given size, such as a clipper cut, center cut, chain cut, nut splitter and the like and the change from one to another is worked out so that it can be made quickly. H. K. Porter, Inc., located at Everett, Mass., is the manufacturer.



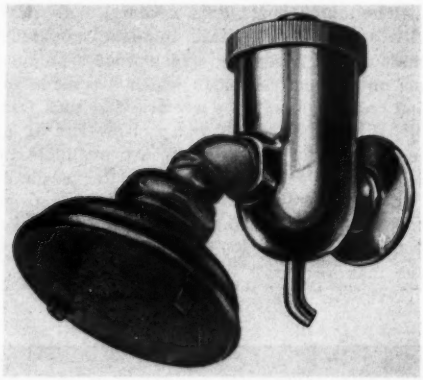
New Laundry Tray and Frame

The laundry tray shown here has just recently been placed on the market. A number of features are listed in favor of it. These include a washing accessory shelf which extends the full length of the tray and which is cast integrally with the back of the tray. In the tray there are located two large soap dishes which are made to be self-draining so as to keep the soap dry. The left hand compartment contains what is described as a life time weight copper wash board which is cast into the tray. Also, the wash boards can be furnished in stainless steel if desired. An ornamental rim having well rounded corners and no sharp edges is included to protect the top of the tray. The corners of the tray are designed to be round so as to make the tray easily cleaned. The shelf is drilled to accommodate a down supply faucet. Also, the tray can be equipped with any standard swing spout faucet with a standard length swing spout. A rust resisting faucet anchor is furnished as regular equipment for this purpose. The frame shown here is equipped with leveling screws in each leg so as to facilitate installing the equipment. D. D. Wessels & Sons Co., 1625 Euclid Ave. East, Detroit, Mich., is the manufacturer.



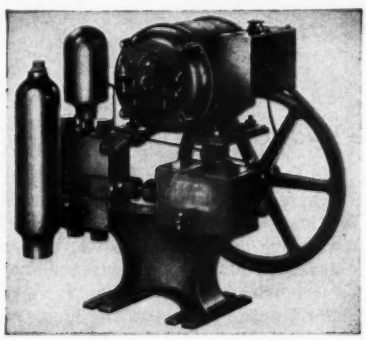
Device for Protecting Against Scalding

Here is a unit which has been placed on the market as being adaptable to all regulation shower heads, as a safety device against scalding. As indicated by the accompanying illustration, it is made so as to be attached to a shower without disturbing the plumbing in the wall. It is described as being balanced automatically to all variant water pressures. Also, it is made so as to close and open instantly. Another feature of this device is that it drains the hot water from the riser pipe for the purpose of preventing the necessity of waiting for pent-up water or the shower head to cool. Still other features built into this include provisions for self-cleaning as far as grit and scale are concerned. Federal-Huber Co., of 123 N. Sangamon St., Chicago, Ills., is the manufacturer of this product, as a licensee.

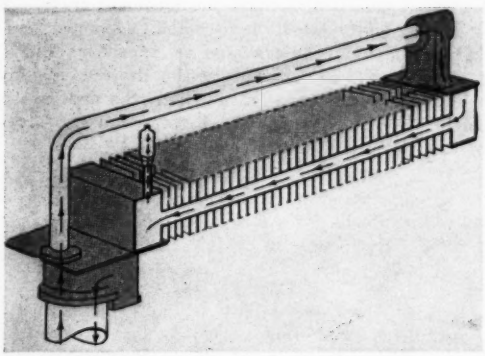


An Addition to Line of Water Systems

An announcement has just been made of a new addition to a line of water systems. An illustration of this unit is shown here. The pump is rated as having a capacity of 225 gal. per hr. It is for shallow well water systems. The electric motor is rated at ¼ h. p., 110 volts. The pressure switch has a thermal overload coil and button. The piston

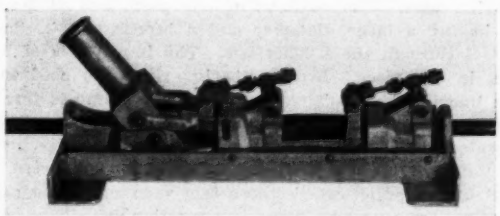


rod is described as being made of stainless steel. The plunger leathers are featured as being of a non-hardening type and the plunger is made to be removed easily without tearing down the pump. Brass plugs are located above the valves to make inspection or replacement easy. The pump is listed as being adaptable to all size storage tanks. Red Jacket Manufacturing Co., of Davenport, Iowa, is the maker.



A Single Pipe Built-In Heater

A new single pipe built-in heater, a drawing of which is shown in the accompanying illustration, has just been placed on the market. As indicated by the arrows in the drawing, steam enters the unit and travels up the loop and over the heater until it enters the heater proper. Air and water, if any, are pushed ahead with all of it flowing in one path but in the same direction. The air is eliminated by the air vent while the water of condensation passes on and flows out of the heater through the single pipe connection. The manufacturer calls attention to the fact that the air valve is located at the extreme end of the heater and that while this vent appears to be on the supply side, actually it is at the low point of the circuit. As air has to be expelled first and because it is heavier, the air valve was placed at the point shown. In order to provide an easy means of connection and ready access, the valve is shown installed with a short connection. This heater is manufactured by the Commodore Heaters Corp., 111 West 42nd St., New York City.



Pipe Puller and Pusher

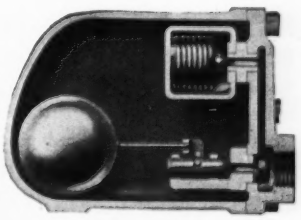
Here is a piece of equipment which has been placed on the market for the purpose of installing pipe under ground without the necessity of digging a trench. It is made so as to both pull and push pipe. In practice, it can be operated to pull out the old service pipe and at the same time pull

The Sikorsky Aviation Corp., Bridgeport, Conn., write "installing Sarco Float Traps resulted in an approximate saving of 10% of our oil cost."

By substituting Sarco Float and Thermostatic Traps for traps previously used on 15 unit heaters, they saved about $600.00 a year in fuel bills.

SARCO

FLOAT AND THERMOSTATIC STEAM TRAPS



will handle condensate in large quantities and in sudden rushes, such as you get in unit heaters, steam coils, hot water service tanks, etc. They can be screwed into the piping without platforms or supports. The thermostatic by-pass valve removes air automatically without loss of steam. Valve head and renewable seat on high pressure types are stainless steel and will not score or wire draw. All working parts mounted on cover for ready access.

Write for Catalog M-38.

SARCO CO., INC.
183 Madison Ave. New York, N. Y.
Branches in Principal Cities
Sarco Canada Limited
Federal Bldg., Toronto, Ont., Canada

IT'S THE
INSIDE OF PIPE
THAT COUNTS

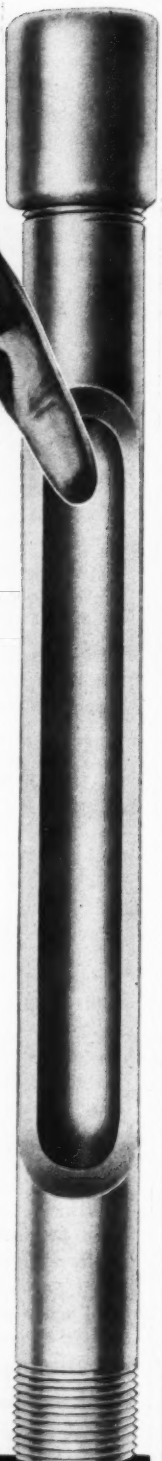
All pipe looks nice on the outside, but it's not the outside surface that must do the work—it's the inside that counts!

In the exclusive, scientifically-controlled "continuous process," by which all Fretz-Moon Pipe is made, the skelp, or metal ribbon, is carried through the furnace on water-cooled supports. Never once does it come in contact with the sand, scale or other foreign matter on the floor of the furnace.

Thus, the inside surface of Fretz-Moon Pipe is as clean as the skelp from which it is made. All mill scale caused by heat is removed from the inside surface and blown from the pipe. Galvanized pipe is blown clean on the inside surface by superheated steam.

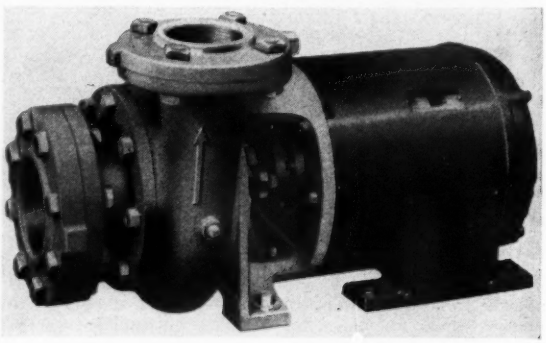
Take a length of Fretz-Moon Pipe—large or small diameter—cut away the wall at any point and examine the inside surface. You'll find it as clean and practically as smooth as the outside. Write for literature.

FRETZ-MOON TUBE CO., INC.
BUTLER, PENNA.



FRETZ-MOON
PIPE
BLACK AND GALVANIZED

in the new one, all in one operation. The unit has two separate gripping devices which are made to grip and release the pipe automatically. One moves forward gripped to the pipe as the other is moving back to a new hold, the idea being to give a continuous movement to the pipe regardless of the direction in which the handle is moved. The machine also is made so that it can be operated by using only one jaw at a time or both together. It is pointed out by the manufacturer that one setting will pull any length of pipe without changing because the pipe will travel continuously as long as the handle is operated. If copper or lead is used, by employing the machine as a pusher first, a pipe or push rod can be inserted to the desired opening and then by using the machine as a puller, the new line can be pulled in behind the push rod. Frazier and Scott, of Troy, Ohio, are the manufacturers.



Horizontal Centrifugal Pump

The accompanying illustration shows a horizontal, close coupled centrifugal pump which is designed for capacities ranging from 100 to 600 g.p.m. against heads up to 189 ft. This pump has been developed as an addition to an existing line of close coupled pumps. It is described as being applicable to circulating and cooling systems, standpipe and water supply systems in factories, warehouses, apartment buildings, homes, hotels, hospitals and office buildings and for transferring and handling all reasonably clear industrial liquids. It is a single-stage, and suction pump. The pump and motor are built together as one unit with a single shaft. The enclosed type impeller is keyed to the motor shaft which extends into the pump casing. There is only one moving part. The shaft is of one piece and is described as having a large diameter and a bronze sleeve where it passes through the stuffing box. The impeller is of bronze cast in one piece. Bronze wearing rings are used to seal the impeller hubs against leakage. This pump is furnished either with or without a water seal. The pump without a water seal is for service where there is a positive pressure on the suction. The pump having an inside connected water seal is for service where there is a vacuum on the packing box, as occurs when there is a suction lift. The outside connected water seal is provided for service where the liquid being handled is gritty or harmful to the packing. This new pump is furnished in semi-steel or bronze as needed. The suction opening is 4 in. and the discharge opening is 3 in. The connections are flanged and the discharge can be placed in either a vertical or a horizontal position. There are two feet under the pump which are designed to support the weight of the pipes so as to relieve the motor shaft and motor frame of any excessive stress or strain. Four feet are provided under the motor. Chicago Pump Company, 2336 Wolfram St., Chicago, Ill. is the manufacturer.

THE TRADE

News of what plumbing and heating contractors are doing the country over

Wisconsin to Hold Convention January 29-31

The Wisconsin Master Plumbers' Association announces that its next annual convention will be held on Jan. 29, 30 and 31, 1935, in Milwaukee. Headquarters will be at the new Pfister Hotel. Officers of this association are: John P. McCoy, Fond du Lac, president; Robert T. Morrill, Beloit, first vice president; R. T. Royston, Madison, second vice president; Charles Pelunek, secretary, and Joseph Wittig, treasurer, both of Milwaukee.

Visits Locals in the Interests of Code and Association Activities

Wm. E. Foley, president of the New York State Association of Master Plumbers and also head of the State Code Authority, is a busy man traveling about the state in the interest of both jobs. On December 6, he appeared in Syracuse, N. Y., and during the week of December 10 attended meetings at Kingston, Poughkeepsie, Troy, Albany, Schenectady, Johnstown, Gloversville and Saratoga.

Plan Timely Program for Illinois Convention

An announcement from the officers of the Illinois Master Plumbers' Association shows the work being done in preparation for its 42nd annual convention at Springfield, January 22-24. Under the leadership of President Henry P. Reger, who is concluding his third consecutive term, subjects of definite interest have been selected and qualified speakers secured. The principal topics to be discussed will be the NRA and the code of fair competition, the federal housing act and the relationship of plumbing and health.

William J. Lang of Chicago as general chairman for arrangements has succeeded in preparing a splendid supplementary program of entertainment. Headquarters will be at the Abraham Lincoln Hotel and social events are scheduled for three consecutive evenings. W. J. Franz, secretary of the Springfield association is local chairman in charge of the arrangements.

Both the president of the National Association of Master Plumbers, John J. Calnan, and of the Women's National Auxiliary, Mrs. Robert Liss, are from Illinois, and will be present at this state convention.

Massachusetts Master Plumbers will Meet in Boston in April

The Massachusetts State Association of Master Plumbers will hold its annual convention April 30, 1935, at Boston, Mass., with headquarters at the Copley Plaza Hotel, according to information just received from Secretary Franklin C. Darling of Fall River, Mass.

Buffalo Master Plumbers Study Code of Fair Practice

The bid depository feature of the Code of Fair Practice for the Plumbing Division of the Construction industry was the subject of an extended meeting of the Master Plumbers Association of Buffalo, N. Y., on December 13. Some of the members of the association believe that that provision of the code is the most valuable feature of the code as it puts everyone on an equality and permits a plumber to tell whether his system of bidding is accurate and in line with costs. The meaning of just what is a bid is the principal point of doubt. W. Frank Clucas, financial agent for the code authority, was requested to write to Washington to secure interpretations on the intent of the code as to what is meant by a bid. The association also considered a local advertising campaign in newspapers to promote modernization but no action was taken.

Kings County Master Plumbers Hold Open Meeting

Kings County Master Plumbers Association, Inc., held an open meeting at its club rooms, Sonia Hall, 1174 Bedford avenue, Brooklyn, N. Y., on Wednesday evening, December 5, with an attendance of about 400.

Alex Rotker, president of the Association, gave a most interesting and instructive talk about the code, and several representatives of the Davis Engineering Corporation of Elizabeth, N. J., were in attendance and told about the construction and operation of this concern's new heaters, and how they are sold.

Following the meeting refreshments were served by Davis Engineering Corporation.

Camden Master Plumbers Elect Officers for New Year

The Master Plumbers Association of Camden, N. J., held its annual meeting and election of officers on Friday evening, December 7. The officers elected are: President, Clarence Scull, Camden; vice president, Clarence Lind, Collingswood; treasurer, Edw. Kelly, Camden; secretary, James E. Bateson, Camden. Board of directors: Wm. J. Kelly, Camden; Ernest Limroth, Westmont; Thomas J. Milnamow, III, Collingswood.

The association is planning a membership drive in the suburban towns. Its educational committee has been very active, having made arrangements for several educational hours at the regular monthly meetings.

At the November meeting Johns-Manville showed its moving picture and had several of its representatives in attendance, delivering instructive talks on insulation for low pressure steam and hot water heating. Following the meeting the members were guests of Johns-Manville at an excellent

buffet lunch. The Barrington Brass Band rendered several selections, while refreshments were being served.

The January meeting will be featured by the showing of the industrial film of Chase Brass & Copper Co., Inc., of Waterbury, Conn., and the Philadelphia branch of Whitehead Metal Products Co. will show its film and its products at the February meeting of the association.

Henry O. Heiser Heads Committee on Plumbing Code for Pennsylvania

Henry O. Heiser

Under the chairmanship of Henry O. Heiser, of Williamsport, Penn., a committee of the Pennsylvania State Association of Master Plumbers has tackled the job of securing a Plumbing Code for that commonwealth. This question is urgent in Pennsylvania, because present regulations do not cover most of the state. First class cities, such as Philadelphia, have been under Code control since 1901 and twenty-five years ago sanitary regulations were written in the commonwealth laws covering second and third class cities. But most of the boroughs, towns and townships are not operating under Code regulation.

Mr. Heiser has been a student of Plumbing Codes for a number of years and when the delegates at the last State Convention authorized the appointment of a special committee to draft and work for a state-wide Code, President William A. Schneider, of Scranton, selected Mr. Heiser chairman of its committee.

The committee is making a study of Codes in other states and is counting upon information from other states and the assistance of those plumbing contractors familiar with the work of securing a new State Code.

The legislative committee in charge of the Pennsylvania code program met on December 8 to plan its program of working for better sanitary regulations throughout the whole commonwealth.

Oranges and Maplewood, N. J. Select Officers

The Master Plumbers Association of the Oranges and Maplewood, N. J., Inc., has elected the following officers for the ensuing year: President, Raymond Bocco, Orange; vice president, Frederick V. Hoffman, Orange; secretary, William M. Durr, East Orange; treasurer, Fred Bogart, Orange; sergeant-at-arms, Herbert Palmatier, East Orange; trustee-elect, A. G. Trapper, East Orange. The hold-over trustees are: George Fricke, East Orange, and Harry G. Krause, Orange. The new officers were installed at a meeting held January 2 in the Association rooms, Masonic Temple, Orange.

South Dakota Master Plumbers Will Not Convene in January

The South Dakota Association of Master Plumbers, which for years has held its annual convention in the month of January, will not do so this year, owing to the fact that several special meetings have been held during the past summer. Another special meeting will probably be called within a month or two, according to Clifford F. Smith of Sioux Falls, secretary of the association, when a little more is known about the outcome of the NRA.

North Hudson Master Plumbers Choose Officers

The Master Plumbers Association of North Hudson, N. J., has elected the following officers for the coming year: President, Fred Baker; vice president, Robert Thane; secretary, Clyde C. Cole; financial secretary, Otto Viehweg; treasurer, Calvin Westerwelt; sergeant-at-arms, Frank Kasper, and trustee for five years, Charles Botwinick.

The new officers of the Association and of the Women's Auxiliary will be installed at the next regular meeting on Monday evening, January 21.

Peoria Master Plumbers Elect Officers

The Peoria Master Plumbers' Association held its annual election of officers on November 28. Harry E. Rose, 229 West Sherman Ave., Peoria, succeeded Lee H. Rose as president. Other officers elected were: Albert L. Lulay, vice president; Fred Siefert, 205 N. Glendale Ave., recording secretary; Milt Hitchcock, City Hall, (plumbing inspector) treasurer; M. Cicciarelli, Peoria Heights, sergeant-at-arms; Hugh P. Marshall, 329 South Adams St., executive secretary; Harry C. Abele, 407 North Bourland Avenue, Wm. A. Crowley, 312 North Madison Street, John E. Studer, 714 Jackson Street, Dan O'Connor, 126 South Washington Street, and Albert L. Lulay, 1205 Millman Street, directors. Harry Abele was appointed chairman of the board.

Newark Master Plumbers Name Officers for 1935

Joseph C. Turbett

The Master Plumbers Association of Newark, N. J., held its annual meeting on Thursday evening, December 13, and elected the following officers for the ensuing year:

President, Joseph C. Turbett; first vice-president, William Rigney; second vice-president, Albert F. Ruehl; treasurer, James O. Lewis; secretary, W. Brand Smith; financial secretary, Fred Hettenbach, and sergeant-at-arms, Leo T. McSulla.

Retiring President W. T. Baudermann in his final speech praised the work of Executive Secretary Ira Morris.

Bureau Aids Industry With FHA Publicity

The Plumbing and Heating Industries Bureau of Chicago has been called upon by the Federal Housing Administration for information on the use of plumbing and heating products in modernizing homes. Secretary Norman J. Radder of the Bureau has just sent to interested associations in this industry copies of some of the articles emphasizing plumbing and heating and used by the FHA in mailings to 12,096 newspapers and magazines.

Quincy Plumbers Elect Officers

Virgil Hetzler was elected president of the Master Plumbers' Association of Quincy, Ill., at the annual election recently. Other officers chosen were Noel Hoskins, vice president; Al Hasse, treasurer, and Elmer E. Ernst, secretary.

A Christmas Greeting

By JOHN J. CALNAN, President,
National Association of Master Plumbers

The old-fashioned greeting, "A Merry Christmas and a Happy New Year" has a perennial charm. I suppose millions of people use it each year. In good times "A Merry Christmas and a Happy New Year" has a real ring to it. Out of sheer exuberance of spirits we shout it to our friends and engrave it on colorful cards. Merry Christmas shines in our eyes and good will dwells in our hearts.

When times are bad, we still wish our friends "A Merry Christmas and a Happy New Year;" but the merriment has sunk to a whisper and our greeting is as drab as our own thoughts. Sunk in melancholy and despair, we mumble the Christmas ritual and pass on to our daily grind.

There has been more mumbling of "A Merry Christmas and a Happy New Year" than exuberant shouting these past few years. More melancholy and despair than good will has dwelt in our hearts. But this Christmas and this New Year, I am sure, will be memorable in our lives. We can shout "A Merry Christmas and a Happy New Year" once more, and mean it.

We have reason to be merry this Christmas, and I know we will have a happy New Year. For the first time in years we can look ahead with confidence into our business future.

Let us look into the future for a moment. What do we see? We see the Federal Government pouring billions into public works. We see private funds coming out of hiding and seeking profitable investment in the building industry. On every hand we see people gathered together talking about modernizing their present homes or building new ones. We see unemployment on the decrease and the haunting fear of perpetual poverty banished.

Now let us look at our own position as it relates to this future. We find ourselves better organized than ever before. We find our membership increasing daily, and its ranks imbued with hope rather than despair. We have an approved code as an instrumentality for good; but above all we have our Association and its half-century of accumulated wisdom and strength. We have greater public acceptance of the essential service we perform and greater recognition of the fact that we, arm in arm with the medical profession, protect the public health.

Who or what do we have to thank for the favorable prospects for the future? I really think that we have our Association to thank. Your Association has spurred the government on and encouraged its constructive actions. It was your Association that secured your code. It was your Association that turned public attention to the health service of the master plumber. It was your Association that got satisfactory plumbing regulatory laws on the statute books. Beyond the Association we can only be thankful for chance benefits.

So, as far as I am concerned, I can sincerely wish you "A Merry Christmas and a Happy New Year." I have worked with you and for you, just as you have worked with and for me. We have reason to be merry this Christmas. We will have reason to be happy this coming year. In the name of the Association and its officers, directors, and employes I wish that all prosperity may crown both your individual and associated efforts from now on.

(Signed) John J. Calnan,
President, National Association of Master Plumbers.

R. D. Rennie, plumbing and heating contractor of Portland, Oregon, while not changing his location has a new number—3532 S. E. Hawthorn Blvd. This is explained by the Portland city council having established a new uniform system of street numbering. Mr. Rennie was formerly president of the Oregon Association of Master Plumbers.

Encouraged by Prospects for 1935

By J. LAWRENCE DeNEILLE, President,
Heating, Piping and Air Conditioning Contractors
National Association

J. Lawrence DeNeille, President of the Heating, Piping and Air Conditioning Contractors National Association, in reviewing the work and accomplishments of his Association during 1934 and in looking into the future, sees indications of hope and encouragement in 1935.

The Association has had a very full year, he points out, full of achievement. Among other accomplishments is that of the code of fair competition for the Heating, Piping and Air Conditioning Contractors branch of the Construction Industry, which was sponsored by the Association. The code became effective on Aug. 9, 1934.

Mr. DeNeille emphasizes that "modernization work is becoming increasingly important. The emphasis which is being given to it by the federal government and the activity which is under way by manufacturers and others in promoting modernization make the subject particularly important to the contractor at this time. Our Association has maintained contacts with the Federal Housing Administration and other agencies interested in the development of modernization work and has supplied materials to our members which enable them to more effectively cultivate this promising and profitable market.

"Our program of Certified Heating, started many years ago, has gone forward steadily. The member of our Association who can offer Certified Heating is in an enviable position in competition with the contractor who can not offer Certified Heating.

"That these services are used and appreciated by our membership is attested by the fact that throughout the year there has been a steady increase in membership. We reached in the middle of the year the all-time high point of our membership and have continued to add to our rolls each month not only additional members from representative sections throughout the country, but several local associations as well.

"With the development of modernization work under the National Housing act, with prospects for new residential construction to be promoted also under the National Housing act later in the year, and with the aid of our code of fair competition which we believe will enable us to take work on a more profitable basis, we look forward with hope to a successful year in 1935, not only in our individual businesses but as a national group."

Director L. J. Kruse Addresses Utah Master Plumbers

L. J. Kruse

L. J. Kruse, of Oakland, Calif., a member of the board of directors of the National Association of Master Plumbers, addressed the members of the Utah plumbing and heating industry at a recent meeting at the Newhouse Hotel, Salt Lake City. Mr. Kruse discussed the activities of the National organization, including the promotion of the Code.

Leo S. Holbrook, Bountiful, was reelected president of the Utah State Association, and George W. Bruerton of Salt Lake City will continue to serve as secretary.

Letters to the Editor

New Advertising Policy Benefits Public Most

To the Editor:

In answer to your communication as to what I think of the advertising of the Standard Sanitary Mfg. Co. advising the public that their material should be installed by qualified employing plumbers, wish to advise that I believe that the general public is going to receive the greater benefit from this advertising. The Standard Sanitary Mfg. Co. are manufacturers of first class plumbing materials, and they realize that their first class plumbing materials to give the proper satisfaction to the owner and to get the best results for those fixtures, should be installed by men qualified to properly install those fixtures.

A very large item in a plumbing installation is the piping and fittings that go to make up the connections for plumbing fixtures, and they should be carefully selected. If the fixtures are of good quality and the material that goes to convey water to the fixtures and to convey water from the fixtures is of good quality but if they are not installed by men who are qualified in their line, the owner will suffer.

This advertising of the Standard Sanitary Mfg. Co. should have the effect of increasing the sale and the installation of good legitimate plumbing fixtures and materials, and curtailing the sale of poor plumbing materials and poor plumbing fixtures. It is needless to say that I approve of the advertising that is being carried on by the Standard Sanitary Mfg. Co. (Signed) J. L. Murphy,

New York.

Joined Another League

To the Editor:

It is my opinion that while we were training for the game of codes last summer, the Soil Pipe Industry took all the balls and bats and joined another league.

However, this branch of the Plumbing Industry overlooked the fact that the D. T. U.'s have not taken over the entire industry, and that, while many of us are sick, we are still alive. Furthermore, there are many materials today that can take the place of soil pipe for waste and vent lines. I wonder if, in their decision to take on these new outlets, they gave any thought to the time and money which many master plumbers all over the country have spent in having our legislative bodies of our cities and states substitute cast iron pipe for vitrified tile in underground work. There are many other angles to the codes which are worth considering and discussing.

Ohio. G. F. S.

Heating Products Not Sold Till Installed

To the Editor:

My attention has been called to the reproduction of two advertisements, one of a manufacturer in a closely related industry to ours, and the other of a wholesaler, which were contained in your November issue.

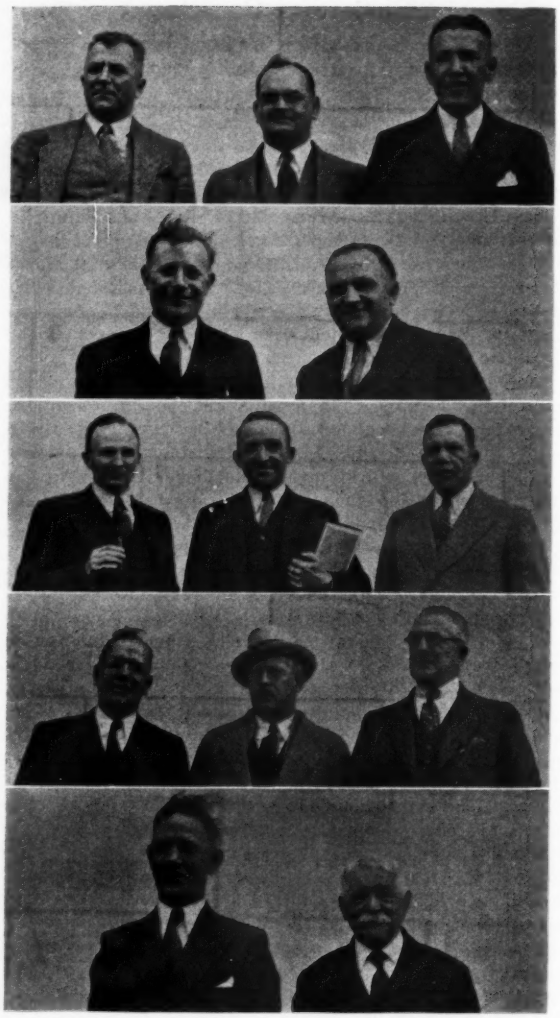
The merchandising policy of this farsighted manufacturer, which emphasizes the fact that the service given by his product depends not alone on the product but also on how well his product is installed, is, I believe, sound and will be productive of results far greater than would be possible were products alone emphasized.

What is true in that industry is likewise true in our industry. The products of the manufacturer in our industry are not completely sold until they are installed and giving satisfactory service. It is our hope that other manufacturers in that industry will follow the wise example set by this manufacturer and that the manufacturers in our own industry will likewise see the wisdom and soundness of a policy of stressing the point that reliable heating, piping and air conditioning contractors should be consulted when problems of heating, piping, and air conditioning are to be handled, rather than giving undue emphasis to products alone.

Such a policy, I believe, will redound to the ultimate profit of both manufacturer and contractor, and is good business from the standpoint of the consumer as well. And by all the rules of fair play it is the most effective method of merchandising. (Signed) Jno. H. Zink,*

Baltimore, Md.

*Vice President, Heating. Piping and Air Conditioning Contractors National Association.



Top picture, left to right: Harry Saeger, Allentown, vice president of Pennsylvania Association; Charles E. Gawne, Chicago, secretary, National Association of Master Plumbers; William A. Schneider, Scranton, President of Pennsylvania State Association of Master Plumbers. Photos taken at Harrisburg meeting on Nov. 24, 1934. Second row: John Palfreyman and Wm. Frey, both of Philadelphia. Third row: Stanley Florey, T. F. Gaughan and Carl Wenzel, all of Scranton. Fourth row: W. C. Stranaghan, Llanerch; F. Leo Smith, of the Federal Housing Administration, and W. E. Miller, plumbing contractor, both of Washington. Fifth row: Edward Quaid, Philadelphia, and his father-in-law, John H. Gaffney, Drexel Hill

New Sales Policy Moves in Right Direction

To the Editor:

I have sent the following letter to Henry M. Reed, president of Standard Sanitary Mfg. Co.:

Most of us do a lot of complaining when things are not to our liking, and do not always applaud when they are otherwise.

I wish to take this opportunity however, to commend you and your company for the wonderful advertisements which you are placing in the various newspapers of the country calling the attention of the public to your wares, and also to the fact that the installation is not complete or satisfactory without the services of the master plumber.

I have seen the advertisement in the Orange Daily Courier, Newark Evening News and the New York Tribune. These papers have a wide circulation in this territory, and I am positive that this progressive step on your part will be the means of promoting the sales of your goods in our locality, and will also be of great benefit to the qualified master plumber in combating D. T. U. sales.

Keep up the good work, as I believe it is a step in the right direction.

(Signed) George H. Werner,*
Orange, N. J.

*Mr. Werner is a director of the National Association of Master Plumbers.

Urges Dealers to Sell Products Installed

To the Editor:

I am in hearty accord with John J. Calnan's views and am delighted to see the efforts being made on the part of certain manufacturers and wholesalers to convince the public that they should buy plumbing products through the plumbing contractor.

We feel exactly the same way ourselves about the heating products of our manufacture being sold and installed exclusively by the plumbing and heating contractor.

You will notice on our trade price sheet covering air valves, a marked paragraph in which we recommend that the heating contractor sell all items in the Hoffman line *installed*. In other words, we recognize fully the fact that only in this way is the consumer sure of the greatest benefits from our product.

(Signed) Guy Hutchinson,*
New York.

*Mr. Hutchison is vice president and general manager of the Hoffman Specialty Co. Inc.

Manhattan Master Plumbers Entertained by L. O. Koven & Bro., Inc.

The Manhattan Branch of the Association of Master Plumber of New York City held an open-house affair on Wednesday evening, December 5.

L. O. Koven & Bro. Inc. of Jersey City, N. J., manufacturers of boilers and tanks, sponsored the affair, and after an interesting talk on their products entertained their guests with refreshments and several vaudeville numbers.

Joseph F. Heck, president of the Association, called the meeting to order and introduced Vice President Herbert Halloran, as chairman of the meeting.

Mr. Halloran in turn introduced G. H. Koven, president of L. O. Koven & Bro., Inc., and A. R. Hanson, secretary and sales manager of the company.

Mr. Hanson gave an interesting talk on their products and their installation. He also touched on Codes and Federal Housing Act. He surprised everyone, even Mr. Koven, with his flashes of humor.

E. Goldman, advertising manager of L. O. Koven & Bro., Inc., also gave a short talk during which he stated that

Bid on "CHESTER" ..... *it's a better business getter*

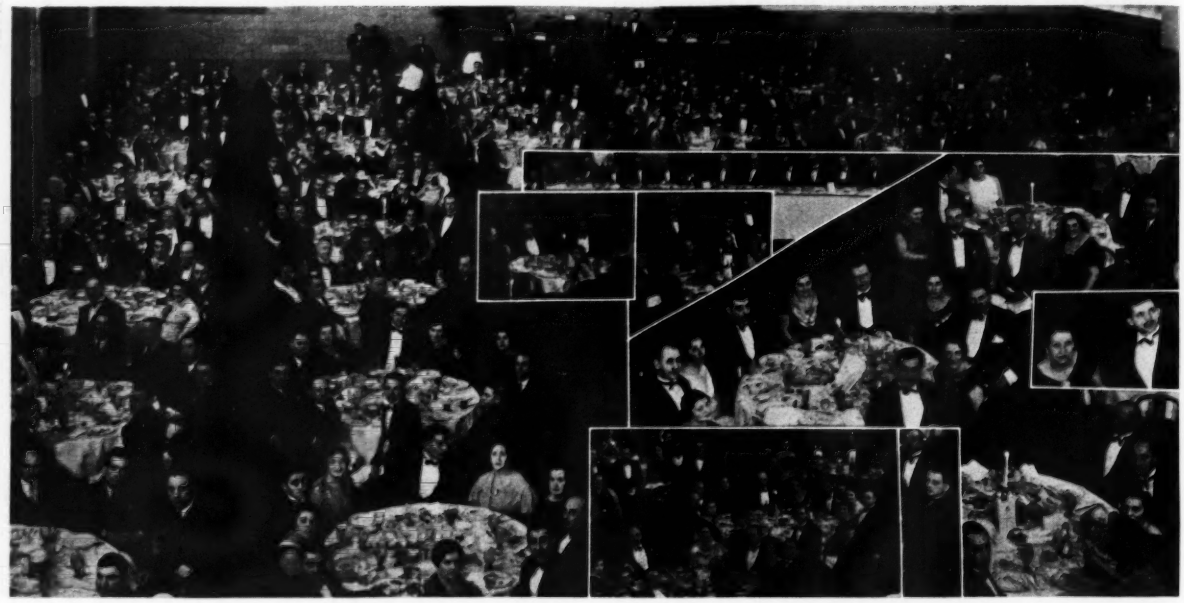
A bid that shows a fair price on a quality product is your best insurance for getting worth while business. A bid on "Chester" Pipe satisfies everyone—the owner knows he will get years of trouble free service; the contractor makes a fair profit and earns the good will that accompanies the use of quality materials; the mechanic puts forth his best efforts knowing that the installation will be a life-long testimonial to his workmanship. Bid "Chester," it's a better business getter.

Because of our nearness to your market we can assure you of prompt and economical delivery of Chester Pipe. Write for full particulars.

South Chester Tube Co.
CHESTER, PA.
New York Office: 30 Church Street
Pittsburgh Los Angeles San Francisco
Forth Worth Tulsa Houston

"Good Enough" methods are not good enough for CHESTER

CHESTER STEEL PIPE



600 Attend Second Annual Dinner of Kings County (N. Y.) Association

"Quality" should be the watchword of every plumber.

B. Von Harten and I. Hahn, salesmen, and C. Halm, superintendent of factory, were also present, representing the Koven Company.

Many of the officers and members of the association were in attendance as well as several representatives of manufacturers and wholesalers.

Montclair, Bloomfield and Verona Plumbers Elect Officers

The regular monthly meeting of the Master Plumbers Association of Montclair, Bloomfield, Verona and vicinity, N. J., Inc., was held on December 18 at Vreeland's Tavern in Montclair. Henry Williamson and Charles Samuel served on the committee in charge.

After an enjoyable dinner the business session was held.

New officers were elected for the coming year, the choices being as follows: President, Henry J. Williamson, of Montclair, who will serve his thirteenth term in the chair; vice president, H. J. Weingartner of Verona; secretary, Charles J. Samuel of Montclair; treasurer, Paul Zeim of Bloomfield; trustee, C. John Klimback of Essex Falls, and inner guard, Joseph Capute of Montclair. The hold-over trustees are Arthur Sherman of Glen Ridge and Al Kievit of Montclair.

Attendance prizes were won by Henry Williamson and John Heyrich, both of Montclair.

Eight members who showed one hundred per cent in attendance at all meetings during the year were presented with pocket flash lamps. They were Paul Zeim, Henry Williamson, C. John Klimbach, Frank O'Brien, John Heyrich, Al Kievit, Joseph Capute and Charles J. Samuel.

The association voted to send flowers and congratulations to their fellow member, Fred Sherman of Glen Ridge, who will celebrate his golden wedding anniversary on December 28.

J. R. Lewis of DOMESTIC ENGINEERING was a guest and gave a short talk.

The January meeting will be held in Caldwell with Arthur Badgley and Eugene Straub serving on the committee in charge.

Kings County Master Plumbers Association, Inc. Holds Second Annual Dinner

The second annual dinner of Kings County (N. Y.) Master Plumbers Association, Inc., was held on Thanksgiving Eve, November 28, in the grand ball room of Hotel St. George, Brooklyn, N. Y., with about six hundred men and women in attendance.

After dinner, the assemblage was addressed by prominent men of the industry and by other guest speakers and then dancing was in order until the "wee sma' hours."

At the speakers' table were: Robert J. Barrett, Washington, D. C., executive director, Divisional Code Authority; Jacob Stockinger, Jr., Queens, Long Island, chairman, New York City Code Compliance Committee; Hon. William R. Wilson, Hon. S. Sabbatino, P. J. Touhy, chief plumbing inspector; Alex. Rotker, president, Kings County Master Plumbers Association, Inc.; Alfred Olson, vice president, Albert A. Kline, treasurer, S. A. Weithorn, and I. H. Helfgott, publicity director.

Counselor Joseph S. Byrne acted as toastmaster and proved an ideal one in his introductions of the honored guests who delivered interesting addresses.

Following the speeches, Treasurer A. A. Kline, on behalf of the Association, presented President Alex Rotker with a traveling bag, and Mrs. Rotker with a beverage service, as a token of the esteem in which they are held by the members.

Among the guests were many representatives of the manufacturers, wholesalers, the trade press, utility companies and city departments.

The officers and members of the entertainment committee are: President, Alex Rotker; vice president, Alfred Olson; treasurer, A. A. Kline; recording secretary, I. Friedman; financial secretary, L. Molinari; sergeant-at-arms, I. Casaccio; counselors, Byrne & Byrne; director of publicity, I. H. Helfgott.

Entertainment committee: A. A. Kline, chairman; M. Grand, treasurer; A. Olson, L. Molinari, I. Friedman, E. H. Raskin, A. Feldman, S. Weithorn, A. A. Motta, F. Cappuccio and T. C. Constantino.

New Jersey State Association of Master Plumbers Holds Quarterly Convention

The second quarterly convention of the New Jersey State Association of Master Plumbers was held at United Singers Grove, Springfield, N. J., on Tuesday, November 27.

State President Edmund P. Ingram of Jersey City, called the meeting to order, following which Miles W. Beemer of the Federal Housing Administration was introduced and spoke on the Federal Housing Act. He stated that in the few months it had been in operation in New Jersey, over a million dollars in loans had been made.

President Ingram next introduced Harold S. Fistere, director of Code Compliance of the State of New Jersey, representing the government. He explained the new set-up, both in the United States and in the individual states for Code Compliance. He also explained the new State NRA Act that is before the state legislature and said that, if passed, it would do several things, among them it will give an individual industry a chance to set a minimum charge on a particular job, allow a state or local code committee to go into a state court to sue for code assessments. It will give an employee the right to go into a state court to sue for wages under his Code, and it will make all contractors who bid on jobs be in compliance with their particular industry's code.

After luncheon Past National President Robert J. Barrett of Washington, D. C., was given a big ovation when introduced by President Ingram.

Mr. Barrett went into details about the National Plumbing Code, explaining many of the clauses that have been confusing to some plumbers.

He stated that at present there are 1987 men working throughout the United States on code enforcements.

Further, he said, it is no longer necessary to send complaints to Washington, D. C., for 12 regional headquarters have been established in the United States, and field men will work from them. This means more rapid enforcement of code regulations.

At the conclusion of his talk, Mr. Barrett answered all questions put to him from the floor, and they were legion.

Albert Ruehl of Newark told of his trip to Washington, D. C., to participate in the protest against the Code of the Heating, Piping and Air Conditioning Contractors. He also spoke of the formation of the New Jersey State Heating Association. It now has 160 members and was formed mainly to protect the rights of plumbing contractors who do heating in the state.

State Secretary Anthony Marzullo also spoke on the new heating organization and extended an invitation to all present to join it.

National Director George H. Werner of Orange, who is also state treasurer, spoke on the recent meeting of the board of directors of the National Association of Master Plumbers and praised the men who are guiding the destiny of the Association. He also made a plea for increased membership in the Association.

George Bird of Elizabeth, past state president, made a motion that the Association send a letter to Standard Sanitary Manufacturing Company that the Association had gone on record as approving the advertising of that company, in which they tell the public to have their goods installed by a competent master plumber. It was adopted.

Ira Morris of Newark stated that the newly formed New Jersey State Heating Association was not formed as a temporary proposition but is here to stay and should be supported.

President Ingram announced that the State Collective Bargaining Agreement is ready for the approval of President Roosevelt and it is held in abeyance, until it is signed.

The meeting honored the memory of the late Past National and Past State President Samuel F. Wilson before adjournment, by standing in silence with bowed heads for one minute.

Master Plumbers' Bid Depository Opened in San Francisco

The Master Plumbers' Code for the City and County of San Francisco, District 19, was put into active operation on December 3rd by the establishment of the official bid depository at the Hays & Octavia Branch Bank of America. This was announced at the annual meeting of the San Francisco Association on December 7th.

At this time officers for the ensuing year were elected as follows: Jack Camp, president; V. J. Petersen, vice president; Charles Noury, treasurer, and J. J. McLeod, secretary.

Board of directors: Harold Betram, N. J. Cohen, S. J. Di Vecchio, Geo. Wara, Fergus Gomersall, Harry Williamson, Charles Welch, E. A. Balling, Geo. Y. Morton, Joseph Sand Jr., and Otto Anderson.

Minor changes were made in by-laws, effective January 1, 1935. Regular meeting nights of the association will be the first and third Mondays of each month, while the board of directors' meetings will be held on the second and fourth Mondays.

The association feels that very little difficulty will be experienced with the code depository as the members have, for the past six months, operated on a bid depository under a set of Time and Place rules. This advanced educational work should aid members under the code. The bid filing fees are as follows:

$150.00 to $249.99	$0.25
250.00 to 499.00	.50
500.00 to 999.99	.75
1000.00 and over	1.00

W. R. Threlfall Loses Life in Automobile Accident

W. R. Threlfall

Wm. R. Threlfall, president of the Threlfall Plumbing Company in Wichita, Kansas, lost his life in an automobile accident several weeks ago, while on a return trip from Kansas City to Wichita. Mr. Threlfall had been engaged in the plumbing business in Wichita for more than twenty years and been active in plumbing associations as well as in civic affairs. He was a past president of the Kansas State Association of Master Plumbers.

Joseph J. Doherty Celebrates 44th Anniversary in Business

Joseph J. Doherty of 406 Ninth Street, Brooklyn, N. Y., celebrated the 44th anniversary of his entrance into the plumbing and heating business on Saturday, December 8. Mr. Doherty has always had his headquarters in the Park Slope section of Brooklyn. He succeeded his father John M. Doherty, who also was well known in plumbing and heating circles in his time.

New York Stops Work Where Code Is Violated

Plumbing code enforcement in New York City has been attracting attention from outside the industry. The Dow Service *Daily Building Reports* recently reported that in New York City construction projects are being stopped at the rate of one a day for violation of the plumbing code.

In New York City, the code compliance committee is headed by Jacob Stockinger Jr., Queens, chairman. The members are: Charles Mentzinger, Brooklyn; Philip Weinseimer, Manhattan; Emil Siekmann, Staten Island; William McNaught, The Rockaways; Harry Hemlin, Manhattan; William Crosson, Staten Island; F. A. Hutchinson Jr., Brooklyn. S. G. Arnone, Bronx, is secretary. Temporary offices are at 29-24 Newtown avenue, Astoria, Long Island.

TIE IN CODE WITH 1935 LICENSES

Direct news from this committee a few days ago informed us that it has now written to Mayor LaGuardia, of New York City, requesting him "to direct the examining board of plumbers for the City of New York, not to issue any renewals for the year of 1935 unless a signed copy of a compliance certificate is shown. Although it is estimated that about 60 per cent of the plumbers doing business in the city of New York are now operating under the code, with this action on the part of the Mayor we can be assured of 100 per cent cooperation. We have not as yet received a reply but we expect one within the next few days."

This committee also reports that "there has been considerable action on the part of the New York City code compliance committee in securing the return of blue plates which have been illegally used, and also in stopping the handyman, the janitor, and the superintendent, or other unlicensed plumbers from doing plumbing work. We are receiving 100 per cent cooperation from the NRA office in this city who have lightened our task considerably by prosecuting violations both through arbitration and courts."

The New York *Herald Tribune*, in a recent analysis of this committee's work, said:

"At the time the five bid depositories were established every plumber registered with the examining board was notified and instructed to file a copy of every bid submitted amounting to $100 or more. Inasmuch as this was a radical change in the practices of the industry the educational campaign was started. All violations brought to the attention of the committee were corrected by calling them to the notice of the violators. On October 26, all industry members were formally notified that the educational period was at an end and that from then on all violators would be treated strictly in accordance with code procedure.

"Since the October 26, twenty-five jobs have been stopped due to bid filing infractions of one kind or another. Of the twenty-five jobs stopped up to November 25, nine have been reawarded and the other sixteen are now before the trade practice complaints committee awaiting action.

EFFECT ON GENERAL CONTRACTORS

"General contractors therefore, have something at stake in determining whether or not the plumber to whom he wishes to give the work has qualified to accept it. As an instance, a general contractor recently invited plumbing bids for a group of houses. The bids he received were in line but all were considered too high. He then asked for an additional bid from a plumber who had not originally figured and on being presented a slightly lower estimate awarded him the job. He did not file a copy of his bid and thus when the code compliance committee heard of it the job was stopped, the general contractor was given choice of three alternatives: Give the plumbing to one of the original bidders who properly filed, reject all bids and refigure after 90 days, or substantially revise the plans and specifications now and refigure. The second and third alternatives were inconvenient to the general contractor as was the first, but it was his best and he reawarded the plumbing at a higher figure."

Among Chicago Plumbing Contractors

Rupert J. Weber of the Jacob G. Weber Company, 2841 North Clark Street, Chicago, was recently honored by being unanimously elected as president of the Rolling Green Country Club. Since his withdrawal from active participation in Chicago Local and Illinois Master Plumbers' Association, Mr. Weber has found it necessary to find an outlet for his surplus energy. Mr. Weber who specializes chiefly in fine residential work, is an ardent golfer and for the past year or two has managed to spend quite a little time on the links.

In a letter to his customers, Samuel Erman, 735 E. 47th Street, calls attention to the important part the plumber plays in the maintenance of public health and also to the fact that the City of Chicago requires every master plumber to take an examination to secure a license to do plumbing work and also file a bond for ten thousand dollars with the City to guarantee the faithful performance of his work. He asked them to give their plumbing work to legitimate licensed master plumbers and not encourage cheap handymen who are not competent,

William S. Fadie, for many years engaged in the plumbing business at 35th Street and Indiana Avenue, Chicago, passed away Tuesday, December 4th, following a brief illness. He was 68 years old but was active and in good health until a few weeks before his death. He was a member of the Chicago Plumbing Contractors' Association and also took an active interest in the affairs of the South Side Master Plumbers' Club several years ago. He is survived by his widow and three sons.

At its Annual Meeting held December 5th, the North and West Side Master Plumbers' Pleasure Club elected the following officers for the coming year: President, Fred W. Sorge; vice president, Paul Grosse; financial secretary, H. H. Diedesch; recording secretary, John Blair; treasurer, L. P. Markowski; sergeant-at-arms, Emil Otto. The retiring president, Walter Sievers, will remain as a member of the board of directors. Prior to the business session, the entertainment committee served a dinner to the 35 members in attendance. The installation of officers will be held early in January.

The Annual Meeting and Dinner of the Chicago Plumbing Contractors' Association will be held Friday evening, January 4th, in the Florentine Room of the Congress Hotel. The Nominating Committee recommended the election of the officers and directors for the ensuing year: President, Chas. E. Gawne; vice president, Thos. F. Hanley; treasurer, Henry P. Reger and secretary, Peter M. Munn.

Directors: E. W. Kaiser, Henry O'Callaghan, Marcus Weil, T. W. Merryman, Michael Mele, John J. Calnan, Henry Swade, A. J. F. Low.

Chicago building permits to December 1, 1934, aggregated $7,727,351, their value for the full year of 1933 was $3,683,960 and for 1932 $3,824,200. In 1931 the permit total was $46,440,130, while for each of the 3 years during the building boom, permit values exceeded $300,000.00. There has been an increase in private construction during the past year and members are looking forward optimistically to the coming year which they expect will be double that of the last year's record, both in modernization work and new construction.

Obituaries—

John L. Swafford Dies in Automobile Accident

John L. Swafford, president of the Swafford Heating Company of Oklahoma City, Okla., lost his life in an automobile accident at 11 o'clock on Monday evening, December 3, when his car crashed into an iron post while he was on his way home after working late in his office. Mr. Swafford was president of the Oklahoma State Association of Master Plumbers and was one of the best known plumbing contractors in Oklahoma. He was in his fortieth year at the time of his death. His wife, a son, a daughter and his mother survive him.

John L. Swafford

Alvin W. Bahn

Alvin W. Bahn, an honorary member of the Chicago Plumbing Contractors' Association passed away December 21st at his home in Chicago, following an illness of several months. Mr. Bahn, who was well-known by the master plumbers of the Chicago Northwest side, retired from the plumbing business about twenty years ago. He is survived by his widow and a daughter.

F. J. McGarry

F. J. McGarry, member of the plumbing and heating firm of F. J. McGarry & Bros., 4326 Lancaster avenue, Philadelphia, Pa., died at his home in that city on Thursday, December 13. Mr. McGarry was a member of the Master Plumbers' Association of Philadelphia.

James Hervey Barnett

James Hervey Barnett, who was engaged in the plumbing business in Rochester, N. Y., for many years, but about 12 years ago moved to Attica, N. Y., died in the latter city on December 11.

George M. McGeary

George M. McGeary, who has been conducting a plumbing and heating business in St. Paul, Minn., for many years, died recently at his home in that city in his 75th year. His wife and four sons survive him.

Alton B. Duke

Alton B. Duke, who had been engaged in the plumbing and heating business in Waterloo, Iowa, since 1890, died recently at his home in that city in his 72nd year.

Charles B. Huck

Charles B. Huck, who has been in the plumbing business in Buffalo, N. Y., since 1878, and who has five sons now actively engaged in the business as master plumbers in Buffalo and Williamsville, N. Y., died recently at his home in Buffalo in his 86th year. Mr. Huck was a charter member of the Buffalo Master Plumbers Association. He was prominent in the New York State Association and served two terms as president of that organization. He served on numerous committees of the National Association. When he retired some years ago because of failing eyesight, he operated two shops, one at 60 High Street and the other in Williamsville. Three of his sons, Arthur C., Theodore H. and Carl B. Huck now run the High street shop. Rupert L. Huck, another son, runs the Williamsville shop. The fifth son, Ralph L. Huck, alternates between the two places. Mr. Huck is survived by his widow as well as his five sons. In his earlier days he was a member of numerous Buffalo societies.

Bert R. Sausen

Bert R. Sausen, sales manager of the Binks Manufacturing Company of Chicago, died at his home in Oak Park, Ill., on Friday, December 7. A son survives him.

D. F. Walsh

D. F. Walsh, a master plumber of Chicago, passed away a few weeks ago at his late residence, 9016 Cottage Grove Avenue. He had been in business in Chicago since 1896. He is survived by his widow, two daughters and two grandsons.

Walter W. Muench

Walter W. Muench, for many years engaged in the plumbing business at 2134 Cherry Street, Philadelphia, Pa., died at his home in that city recently. He was a member of the Master Plumbers' Association of Philadelphia.

George Casper

George Casper, plumbing and heating contractor at Devils Lake in North Dakota, died in Minneapolis, Minn., at the home of his sister on Sunday morning, December 9, in his 45th year. Mr. Casper was born in North St. Paul, Minn., and learned his trade at Fargo, N. Dak. From there he moved to Devils Lake about 12 years ago and opened a plumbing and heating business. He took an active part in association matters and was a past president of the North Dakota State Association of Master Plumbers. His funeral was held in Minneapolis on Wednesday, December 12, with interment in the Crystal Lake cemetery, near that city. A son and two sisters survive him.

George Casper

John J. Burns

John J. Burns, of Chicago, a member of the Plumbing Contractors' Association of Chicago for many years, passed away recently after an illness of two years, in his 64th year. He is survived by his widow, three sons, and one daughter.

Rockford Plumbers Elect Officers

At the December meeting of the Rockford, Ill., Master Plumbers' Association, Elmer O. Bergren was elected president, succeeding Thos. H. Conners, a member of the State Code Compliance Committee. Other officers elected were: Charles Hodges, vice president; Ed. Hammer, treasurer; Joseph W. Nilson, secretary, and H. L. E. Peterson, director. The board of directors is composed of these officers.

Quintuplets—

(Concluded from Page 50)

an electric heater will be installed. One of the most urgent and constant requirements is plenty of hot water at all times.

While the heating system was laid out originally as a one-pipe closed circuit, later changes made it necessary to hook up three radiators at the rear of the building on a two-pipe system. The remaining ten radiators are on a one-pipe 2 in. circuit. The job calls for 90 deg. Fahr. at any time in the babies' room, which is some requirement, considering the extremes of winter weather in that district.

The boiler is fitted with an automatic control valve and automatic damper control. This square type boiler is well adapted to wood burning, a not-unimportant consideration there. All heating mains and branches are insulated with 3-ply air-cell covering.

Each radiator is fitted with an individual humidifier to maintain the desired humidity. The temperature is not allowed to range beyond 70 to 80 degrees.

Ventilation is taken care of by double windows year around arranged to eliminate drafts. Every door and window is fully screened and all occupants, except the babies, are provided with individual fly swatters, so that it is just sheer suicide for any fly to attempt an exploration flight through the building. Garbage is incinerated immediately, and the entire environments kept scrupulously clean.

To imagine that any of these precautions have been superfluous is to betray an under-estimation of the tremendous and unceasing care involved in this record-breaking feat. One degree less of caution in any detail might well have resulted in the most serious consequences, and it is surely a tribute to all concerned.

During October the babies were treated cautiously to outside exposure, invariably under the constant watch of the trained nurses and the periodic visits of Dr. Dafoe. In a recent statement, the Doctor modestly expresses his satisfaction that each baby can now be regarded as having the usual expectancy of life as would a single normal child at the time of healthy birth.

And what about the man who designed and installed the complete heating, water supply and sewage disposal system—H. T. Gagnon of North Bay? Well, like Dr. Dafoe, he does not stand to benefit materially from an exploit that well might have been much more widely hippodromed in some other districts. As he explains it simply himself, "I had no financial interest in the matter, but, being a personal friend of the father and mother of the Little Queens, I took a really keen concern from start to finish, and it is now my big hope that the little Quinties will live and enjoy a long life."

O'Callaghan—

(Continued from Page 42)

by Crane Co., early next year in which the public will be told that the plumbing contractor is in a position to bid on the complete bathroom modernization job.

I understand that this message from Crane Co., which will appear in the February issue of consumer publications, will be brought to the attention of the trade through advertisements in the trade press.

Your national conference committee is pleased with the cooperation we are getting from manufacturers in our sales promotion efforts. The advertisements of the Standard Sanitary Manufacturing Co. advising the public to deal only with the master plumber and the contemplated advertisements of Crane Co., show a unity of thought and a concentration on the immediate needs which should go forward giving all of us the volume of business we need.

In conclusion I wish to appeal to every member of the National Association of Master Plumbers through their local conference committee to give the plan a trial.

After trying it, I am convinced that you will agree with me that it is a most practical and effective way of insuring your individual prosperity for 1935.

Mathematics—

(Continued from Page 47)

Since it is carrying only 750 sq. ft. the amount less than its rating is

$$1000 \text{ sq. ft.} - 750 \text{ sq. ft.} = 250 \text{ sq. ft.}$$

In percentage this is

$250 \text{ sq. ft.} \div 1000 \text{ sq. ft.} \times 100 = 25$ per cent less, which is the per cent less than rating at which the boiler is operated.

Now one mistake which frequently occurs in speaking of boiler ratings is to say that when a boiler is carrying twice its rating it is operating at 200 per cent overload. This is not true as will be seen by considering back to the point where the boiler rating is the base or 100 per cent. If the boiler is carrying twice its rating it is operating at

$$100 \text{ per cent} \times 2 = 200 \text{ per cent}$$

of its *rating* but the overload is

200 per cent — 100 per cent = 100 per cent *overload.*

Similarly, if a boiler is carrying three times its rating it is operating at 200 per cent overload or 300 per cent of its rating. This is because the overload is the amount in excess of the normal rating; the normal rating being the base, or 100 per cent, the overload percentage will always be 100 per cent less than the percentage of rating carried.

For example: A boiler rated at 1200 sq. ft. is carrying 1800 sq. ft. At what per cent of its rating is it operating and what is the percentage of overload?

As 1200 sq. ft. is the rating or "base" on which the percentage is to be calculated according to the rule quoted previously the operating percentage of rating would be

$$\text{Load} \div \text{Base} \times 100$$

or

$$1800 \div 1200 \times 100 = 150 \text{ per cent}$$

but the overload is the excess of the actual load over the normal rating which is

$$\text{Load—Base}$$

or

$$1800 - 1200 = 600 \text{ sq. ft.}$$

and this in percentage will be found by

$$\text{Excess} \div \text{Base} \times 100$$

or

$$600 \div 1200 \times 100 = 50 \text{ per cent.}$$

According to the previous conditions the overload per-

centage will always be 100 per cent less than the rating percentage so

150 per cent rating — 50 per cent overload = 100 per cent difference

which checks.

It previously has been stated that percentages are whole numbers and not decimals and that the per cent sign indicates a division by 100 as when

$$10 \text{ per cent} = 0.10 = \frac{10}{100} = \frac{1}{10}$$

but there are certain conditions when a decimal appears in a percentage. One of these cases is where a fraction occurs in the percentage. A good typical example of such a case is illustrated in trying to express ⅓ and ⅔ in percentage or in decimals. Owing to the fact that 100 is not exactly divisible by 3 it is impossible to exactly express ⅓ or ⅔ in percentage or decimal form without using a fraction.

This will be seen by trying to change ⅓ to decimal form by dividing the numerator by the denominator which gives

$$\frac{1.00}{3} = .33\tfrac{1}{3}$$

$$.33\tfrac{1}{3} \times 100 = 33\tfrac{1}{3} \text{ per cent}$$

or

$$\frac{1.00}{3} = 0.33\tfrac{1}{3}$$

$$0.33\tfrac{1}{3} \times 100 = 33\tfrac{1}{3} \text{ per cent}$$

while ⅔ will be just twice as much as obtained above or $66\tfrac{2}{3}$ per cent.

In one case there is a plain common fraction at the end of the percentage figure and in the other there is a decimal plus a common fraction following the whole number of the percentage.

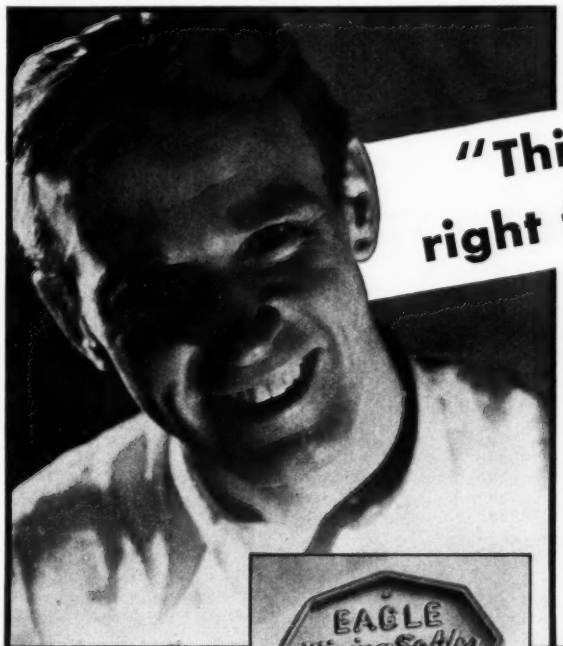
The other instance where percentages are not expressed in whole numbers is where the percentage is not an even per cent or where it is less than 1 per cent. For example, if the amount of 20 per cent is divided into 8 parts each part is ⅛ of 20 per cent or 2½ per cent. Expressed decimally this is 2.5 per cent since 0.5 is equal to ½. Similarly ¼ of 1 per cent may be expressed as ¼ per cent or as 0.25 per cent. Percentages sometimes are written carelessly with both the decimal point and the per cent sign as is shown by writing 50 per cent as 0.50 per cent. Actually 0.50 per cent is ½ of 1 per cent and not 50 per cent at all, so care must be used not to combine decimal points and per cent signs where they should not be combined.

Fifty per cent can be expressed by

$$50 \text{ per cent or } 0.50 \text{ or } \frac{50}{100} \text{ or } \tfrac{1}{2}$$

all of which indicate equal values but if a decimal point is put in front of 50 per cent (thus 0.50 per cent) the whole amount is reduced to 1/100 of its previous value owing to two decimal places having been pointed off and the value is then

$$0.50 \text{ per cent or } 0.005 \text{ or } \frac{5}{1000} \text{ or } \frac{1}{200}$$



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Do I have to doctor Eagle Wiping Solder? Not on your life! It's always the same—works the way you like it to on all kinds of jobs, under all conditions. Eagle Wiping Solder is made to a well-balanced formula from the highest grades of new metals. And it's cleaner. There's smaller loss from impurities, dross or oxides. After you've tried Eagle once, you'll stick with it always.

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Eagle Pipe Threading Compound.

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Estimating—

(Continued from Page 44)

$$\text{four-hour peak load} = \frac{720 - 360}{4} = 85 \text{ gallons.}$$

From table V it is found that it requires a burner consumption or rating of 100,000 Btu. per hour to supply 85 gallons of 100 deg. rise water an hour at 70 per cent efficiency.

A safety factor of 10 per cent should be applied to burner rating to allow for radiation losses when figuring large volume storage systems.

Table IV

Maximum Daily Requirements for Hot Water, Gallons for 24 Hours

Hotels	
Room, with basin	10 gals. per day
Room, with bath—	
Transient	40 gals. per day
Resident (bachelor)	40 gals. per day
Resident (women)	70 gals. per day
Resident (mixed)	60 gals. per day
Two rooms and bath	80 gals. per day
Three rooms and bath	100 gals. per day
Public bath	150 gals. per day
Public shower	200 gals. per day
Public basin	150 gals. per day
Slop sink for cleaning	30 gals. per day

Estimated burner rating to supply hot water = 100,000
10 per cent safety factor for radiation losses = 10,000

Burner rating actually required = 110,000 Btu. per hr.

The contractor can now specify a storage vessel of 360 gallons and a gas fired heater with an input or rating of 110,000 Btu. per hour. In going through the heater catalog, the nearest sized heater should be taken, unless there is a large variance in burner ratings, in which case it is well to pick the nearest over-sized heater.

Table VI

Number of Gallons in Round Tanks

Length in Ft.	Diameter—Inches 18	24	30	36	42	48	54	60	66	72
2	26	47	73	105	144	188	238	294	356	424
2½	33	59	90	131	180	235	298	367	445	530
3	40	71	109	157	216	282	357	440	534	636
3½	47	83	127	183	252	329	416	513	623	742
4	54	95	145	209	288	376	475	586	712	848
4½	61	107	163	235	324	423	534	659	801	954
5	68	119	180	261	360	470	593	732	890	1060
5½	75	131	200	287	396	517	652	805	979	1166
6	82	143	217	313	432	564	711	878	1068	1272
6½	89	155	235	339	468	611	770	951	1157	1378
7	96	167	253	365	504	658	829	1024	1246	1484
7½	103	179	271	391	540	705	888	1097	1335	1590
8	110	191	289	417	576	752	947	1170	1424	1696
8½		203	307	443	612	799	1006	1243	1513	1802
10		239	361	521	720	940	1183	1462	1780	2120
12		287	433	625	864	1128	1419	1754	2136	2544
14					1008	1316	1655	2046	2492	2968
16					1152	1504	1891	2338	2848	3392
18							2127	2630	3204	3816
20							2363	2922	3560	4240

It should be noticed that it is possible to pick more than one storage vessel from table VI with an approximate capacity of 360 gallons. This is important in designing the unit for a limited space.

The importance of making correct estimates of hot water requirements cannot be questioned. Many water heating sales have been made and many others have been lost because of a knowledge or lack of knowledge of this subject. The contractor who can make close estimates has the edge on the one who cannot.

Table V

Number of Gallons of Hot Water to Be Had from Any Water Heater in One Hour, with Varying Gas Consumption and Efficiency for Temperature Rises of 60, 80 and 100 Degrees

Burner Consumption Btu. Per Hour	60% Efficiency Rise 60°	80°	100°	65% Efficiency Rise 60°	80°	100°	70% Efficiency Rise 60°	80°	100°
6000	7.3	5.5	4.4	7.9	5.9	4.8	8.5	6.4	5.2
7000	8.5	6.4	5.2	9.2	6.9	5.6	9.9	7.5	6.0
8000	9.7	7.3	5.9	10.5	7.9	6.4	11.3	8.5	6.9
9000	10.9	8.2	6.6	11.8	8.9	7.2	12.7	9.6	7.8
10000	12.1	9.2	7.4	13.1	9.9	8.0	14.1	10.7	8.6
15000	18.2	13.7	11.1	19.7	14.9	12.0	21.2	16.0	12.9
20000	24.2	18.3	14.7	26.3	19.8	16.0	28.3	21.3	17.2
25000	30.3	22.9	18.4	32.9	24.8	20.0	35.4	26.7	21.5
30000	36.4	27.5	22.1	39.4	29.7	23.9	42.4	32.0	25.8
35000	42.4	32.0	25.8	46.0	34.7	27.9	49.5	37.3	30.0
40000	48.5	36.6	29.5	52.6	39.6	31.9	56.6	42.7	39.4
45000	54.5	41.2	33.2	59.1	44.6	35.9	63.6	48.0	38.6
50000	60.6	45.8	36.9	65.7	49.6	39.9	70.7	53.4	42.9
55000	66.7	50.3	40.5	72.3	54.5	43.9	77.8	58.7	47.2
60000	72.7	54.9	44.2	78.8	59.5	47.9	84.8	64.0	51.5
65000	78.8	59.5	47.9	85.4	64.4	51.9	91.9	69.4	55.8
70000	84.8	64.1	51.6	92.0	69.4	55.9	99.0	74.7	60.2
75000	90.9	68.6	55.3	98.6	74.3	59.9	106.0	80.0	64.4
80000	97.0	73.2	59.0	105.1	79.3	63.8	113.1	85.4	68.7
85000	103.0	77.8	62.6	111.7	84.2	67.8	120.2	90.7	83.0
90000	109.1	82.4	66.3	118.3	89.2	71.8	127.3	96.0	77.3
95000	115.1	86.9	70.0	124.8	94.1	75.8	134.3	101.4	81.6
100000	121.2	91.5	73.7	131.4	99.1	79.8	141.4	106.7	85.9

WOMEN'S ACTIVITIES

By DOROTHY EDWARDS

By-Laws for Junior Auxiliaries to the Women's Auxiliary of the N. A. M. P.

Mrs. E. D. Hornbrook of Kansas City, Mo., past president and historian of the Women's Auxiliary of the National Association of Master Plumbers, has just issued the slogan and by-laws for the Junior Auxiliaries as follows:

Name

Junior Auxiliaries to the Women's Auxiliary of the National Association of Master Plumbers.

Slogan

The Plumbers Protect the Health of the Nation.

Objects

To perpetuate the plumbing industry and to honor the Master Plumbers and the Women's Auxiliary.

Sons and daughters of members of the National Association of Master Plumbers may become members of Junior Auxiliaries. No dues necessary.

Boys and girls from eight years to fourteen may enroll as active members. Meetings should be held at least once a month in the home of a member.

Committee on Membership.

Committee on Amendments.

Committee to visit master plumbers' shops to tell the parents what Junior Auxiliaries mean to the future of the plumbing industry.

A Committee on Courtesy, to act at meetings and social affairs, such as picnics, State and National Conventions, etc.

Officers

President, Vice President, Secretary-Treasurer, and Chairman of Junior Auxiliary.

The Auxiliary of the Oranges and Maplewood Elects Officers

The Women's Auxiliary to the Master Plumbers Association of the Oranges and Maplewood, N. J., has just elected the following officers for the new year: President, Mrs. Al Ruehl; vice president, Mrs. Fred Hoffman; secretary, Mrs. T. Berg (re-elected); corresponding secretary, Mrs. Leslie H. Williams (re-elected); treasurer, Mrs. George Brenner (re-elected), and sergeant-at-arms Mrs. Gibbons.

North Hudson Auxiliary Had Pleasant Christmas Party

The Women's Auxiliary to the Master Plumbers' Association of North Hudson, N. J., held its regular monthly meeting in conjunction with its Christmas party on Tuesday, December 11, at the Oyster Bay Restaurant, West New York, N. J., and it proved a most pleasant affair. Past State President Mrs. Charles Zimmerman filled the role of Santa Claus and distributed presents to all in attendance. A chicken dinner was served.

On Tuesday, December 18, this Auxiliary was entertained at a spaghetti dinner at the home of Mrs. Mary Menegaux. The dinner was followed with card games, at which the prizes were hand-made handkerchiefs.

Salem, Oreg., Auxiliary Planning Winter Program

The Women's Auxiliary of the Master Plumbers' Association of Salem, Oreg., met recently at the home of its president, Mrs. J. A. Bernardi, and discussed plans for its meetings during the coming months. Following this discussion, the guests enjoyed a quilt exhibit. Refreshments were served by the hostess.

Queensboro Women's Auxiliary Elects Officers

The Women's Auxiliary of the Master Plumbers' Association of Queens held its annual meeting in the Knights of Columbus Hall, Jamaica, L. I., N. Y., on Wednesday, December 5, and re-elected all its officers as follows: President, Mrs. Henri Billharz; first vice president, Mrs. Charles Budrie; second vice president, Mrs. William E. Foley; secretary, Mrs. Lawrence J. Redmond, and treasurer, Mrs. Joseph Mittasch; chairlady of entertainment committee, Mrs. Charles Hochstatter; publicity, Mrs. J. W. Peter.

Mrs. Henri Billharz

Mrs. Buettner, the historian of the auxiliary, read the history of the organization, covering the last twelve months, and it was both interesting and amusing.

The auxiliary distributed thirteen baskets of food to needy families in Queens for Thanksgiving. Each basket contained a substantial holiday dinner.

Refreshments were served to both the ladies and the gentlemen attending the meeting.

Kansas City Auxiliary Very Active During Fall Months

The members of the Women's Auxiliary of Kansas City, Mo., have been very active during the fall months, as a result of which they were recently able to give the Needle Work Guild 140 new garments and 27 miscellaneous pieces of wearing apparel, caps and hats for boys and girls, under-

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The Plumber is PROTECTED

The reputation of every Koven product has always been jealously guarded—and in so doing they have at the same time protected the plumber.

Every tank is plainly marked as to its grade—not by a stencil but by a permanent trade mark welded on the product.

Quality has never been sacrificed, regardless of competition.

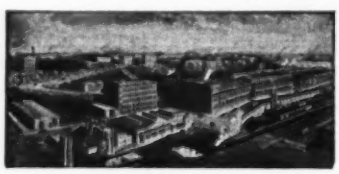
Koven products have won the praise of plumbers everywhere.

Every Koven product has the backing of the Koven reputation.

A few of the Koven products:

RANGE BOILERS
Galvanized or Copper
SCULLERY SINKS
BARBER BOILERS
KOVEN PARACOIL TANKS

STORAGE TANKS
Steel or Copper
FUEL OIL TANKS
EXPANSION TANKS
SEPTIC TANKS



L. O. KOVEN & BRO. INC.
JERSEY CITY, N.J.

wear and hose, etc. These members have also made and donated 14 robes to the Visiting Nurses' Association.

On Friday, December 7, the Auxiliary held a successful card party with an attendance of 65 players, on which occasion the Master Plumbers' Association of Kansas City, Mo., gave the Auxiliary a check for $25 to aid it in its good work.

New Officers in the Women's Auxiliary to the N. A. M. P.

Mrs. Robert Liss, of Chicago, president of the Women's Auxiliary to the National Association of Master Plumbers, has just announced the following changes in the official family as results of recent elections:

Mrs. Wm. Hughes, 939 Michigan Avenue, Detroit, Mich., has succeeded Mrs. Margaret Mesnard of Detroit as president of the Michigan State Auxiliary.

Mrs. S. G. Russell, 1233 East Fifteenth Street, Oklahoma City, Okla., has succeeded Mrs. Glen Watt of Tulsa, Okla., as president of the Women's Auxiliary of the State of Oklahoma.

Mrs. Lee Sheffield of St. Petersburg, Fla., has succeeded Mrs. Lee Phillips of Lakeland, Fla., as president of the Florida Division of the Women's Auxiliary.

Bronx Auxiliary Holds Successful Card Party

The Women's Auxiliary to the Bronx Master Plumbers' Association held a most successful card party in the Association rooms at 416 East 176th Street, New York City, on Saturday evening, December 1, with an attendance of approximately 150 men and women. Nearly all of these took part in the various games of cards. Many valuable prizes were awarded to the winners at the various tables.

The committee of arrangements, headed by Mrs. Anthony Platt, received due praise for its excellent work, which made the event such a pleasant success.

Milwaukee Auxiliary Makes Preparations for Annual State Convention

The Women's Auxiliary of the Master Plumbers' Association of Milwaukee, Wis., held its regular monthly meeting at the Elks' Club in that city on Monday, December 3, and it was preceded by a meeting of its board of directors at which plans were made for the annual state convention which is to be held in Milwaukee in January.

Luncheon was served at 12:45, and the business meeting was called to order at 2 p. m. Mrs. L. C. Pugh, Racine, Wis., president of the Wisconsin State Auxiliary, was in attendance, and refreshments were served after the meeting.

The January meeting will be the annual meeting, and its main features will be the election of officers and their installation.

Cincinnati Auxiliary Holds Successful Card Party

The Women's Auxiliary to the Master Plumbers' Association of Cincinnati, Ohio, sponsored a card party at the Winter Garden in Spring Grove Avenue, Cincinnati, on Tuesday evening, December 4. Many master plumbers were in attendance, accompanied by their families. Card games and dancing featured the party, and the winner at each table received a prize.

The hand-made comforter, donated by Miss Emma Niesen, was won by Russell Frank, and the large cake made by Mrs. Diehl was won by Mrs. N. Wegelin.

The affair was a splendid success and a delight to the members of the auxiliary.

Milwaukee Auxiliary Does Much Relief Work

The Women's Auxiliary of the Master Plumbers' Association of Milwaukee, Wis., held a card party at the Elks' Club in that city on Friday, November 16. Two hemstitched pillow cases served as prizes at each table. There were 73 tables. Members of the Auxiliary and some of the local wholesale houses donated 41 door prizes, and State President, Mrs. L. C. Pugh of Racine, Wis., donated six door prizes. Several Milwaukee jobbers, members of the Wisconsin Credit Bureau donated $50 to the treasury of the Auxiliary, and $150 was realized from the card party.

The purpose of the card party was to raise funds for needy plumbers and journeymen and their families for Thanksgiving and Christmas baskets.

The Relief Committee reports that the Thanksgiving baskets were gratefully received.

Newton Auxiliary Very Active in Charity Work

The Women's Auxiliary to the Master Plumbers' Association of Newton, Mass., held a successful bridge and whist party at Bonds Restaurant in Watertown, Mass., on Thursday, December 6. The party was held around eighteen tables and the proceeds were donated to charity.

The Auxiliary held its regular monthly meeting on Wednesday, December 12, when Mrs. M. J. O'Connell was hostess. Twenty-one were in attendance and enjoyed a turkey dinner. Business meeting was held after the dinner. The Auxiliary donated $10 for the Post Santa Claus and $5 to the Salvation Army.

Following the meeting bridge was played, with honors going to Mrs. C. D. Kieser, Mrs. L. J. Hickman and Mrs. J. H. McGourty.

Women's Auxiliary of Oranges Holds Card Party

The Women's Auxiliary of the Master Plumbers' Association of the Oranges and Maplewood, N. J., held a card party in the Masonic Hall at Orange, N. J., on Thursday evening, November 22, with a good attendance of members of the Auxiliary and the Association. A prize was given to the high scorer at every table, and delicious refreshments were served. The committee in charge of the affair consisted of Mrs. Gertrude Ruehl, Mrs. George Fricke and Miss M. Berg.

The officers of the Auxiliary are: President, Mrs. A. G. Trapper; vice president, Albert Ruehl; secretary, Mrs. Helen Berg; treasurer, Mrs. Alma Brenner, and recording secretary, Mrs. Leslie Williams.

Rock Island and Moline Auxiliary Celebrates Seventh Anniversary

The Women's Auxiliary of the Master Plumbers Association of Rock Island and Moline, Ill., celebrated its seventh anniversary at Swanson Tea Rooms in Rock Island on Monday, December 10. Luncheon was served at one o'clock, and the table was very attractively decorated with a miniature snow-covered forest as a centerpiece.

After a brief business session, Christmas gifts were exchanged, Mrs. Albert Rosenfield, president of the auxiliary, playing the role of Santa Claus.

Bridge was played until late afternoon, with high scores going to Mrs. P. H. Kale, Mrs. J. W. Ward and Mrs. Charles Stange.

The next meeting will be held at the home of Mrs. James Cunningham, 3615 Fourteenth Street, Rock Island, on Monday, January 14, at which time officers for the ensuing year will be elected.

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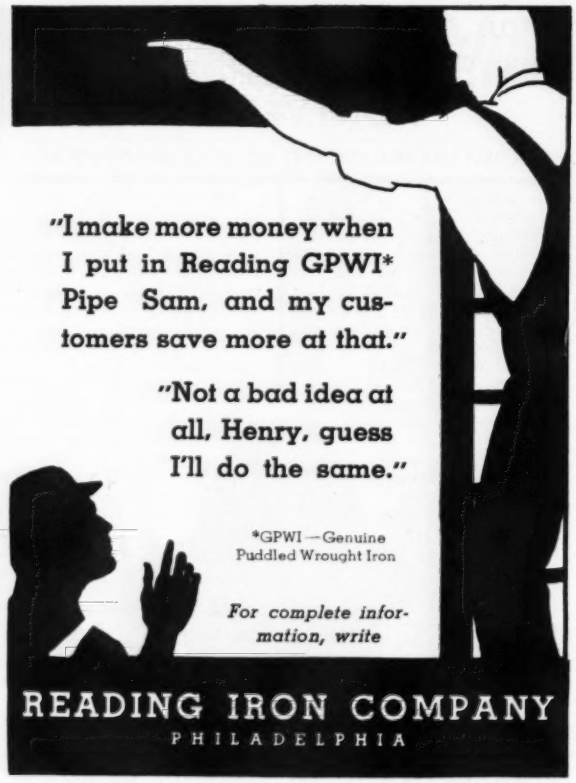
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Annual Dinner Dance of the Auxiliary of the Oranges and Maplewood, N. J.

The Women's Auxiliary to the Master Plumbers Association of the Oranges and Maplewood, N. J., held its annual Christmas dinner dance at Anderson's Hall in East Orange, N. J., on Friday evening, December 21. About 150 enjoyed the fine dinner, dancing and many special features of the event.

Joseph Berg in the role of Santa Claus distributed Christmas gifts to every one in attendance.

Besides members of the local master plumbers' association and its auxiliary, many members of the various associations and auxiliaries in Northern New Jersey were in attendance, as were representatives of manufacturers, wholesalers and the trade press.

Among the guests were: State President Edmund P. Ingram of Jersey City, Past State Presidents James O. Lewis of Newark and George Bird of Elizabeth; Joseph C. Turbett and Al Ruehl, president and vice president, respectively of the Newark Association; Henry Williamson, president of the Montclair association, and Fred Baker and Clyde Cole, president and secretary, respectively, of the North Hudson association.

Among the auxiliary visitors were: Past State Presidents Mrs. Charles Zimmerman, Mrs. Leslie Williams, Mrs. Henry Bunker, and Mrs. Joseph Berg; State President Mrs. Henry Williamson, Montclair; State Treasurer Mrs. John Heyrich, Montclair, and State Sergeant-at-Arms Mrs. Clyde Cole of North Hudson.

Convention Dates

January 22, 23 and 24, 1935.—ILLINOIS.—The forty-second annual convention of Illinois Master Plumbers' Association, at Springfield, Ill., with headquarters at the Abraham Lincoln Hotel.

January 28 to 31, 1935.—A. S. H. V. E.—The forty-first annual meeting of the American Society of Heating and Ventilating Engineers at Buffalo, N. Y.

January 29, 30 and 31, 1935.—WISCONSIN.—The annual convention of the Wisconsin Master Plumbers' Association at Milwaukee, with headquarters in the new Pfister Hotel.

February 4, 5 and 6, 1935.—OHIO.—The annual convention of the Ohio State Association of Master Plumbers, at Columbus, Ohio, with headquarters at the Deshler Hotel.

February 25 and 26, 1935.—MINNESOTA.—The annual convention of the Minnesota State Associaton of Master Plumbers,. at Virginia, Minn., with convention headquarters at the Virginia Recreational Building, and with hotel headquarters at the Ormonde Hotel.

April 30, 1935.—MASSACHUSETTS.—The annual convention of Massachusetts State Association of Master Plumbers, at Boston, with headquarters at the Copley Plaza Hotel.

May 4, 1935.—IDAHO.—The annual convention of the Master Plumbers of the State of Idaho, at Idaho Falls, Idaho, with headquarters at the Bonneville Hotel.

May 6 and 7, 1935.—FLORIDA.—The annual convention of the Florida State Association of Master Plumbers, at Orlando, Fla., with headquarters at the San Juan Hotel.

May 14, 1935.—SOUTH CAROLINA.—The annual convention of South Carolina Master Plumbers Association, at Anderson, S. C.

May 15, 16, 17 and 18, 1935.—NEW JERSEY.—The annual convention of the New Jersey State Association of Master Plumbers, Inc., at Jersey City, with headquarters at the Plaza Hotel.

May 20, 21, 22 and 23, 1935.—CALIFORNIA.—The thirty-fourth annual convention of the State Association of Master Plumbers of California, at Santa Monica, Calif., with headquarters at the Miramar Hotel.

May 20, 21 and 22, 1935.—PENNSYLVANIA.—The annual convention of the Pennsylvania State Association of Master Plumbers, at Harrisburg, Pa., with headquarters at Penn-Harris Hotel.

May 20, 21 and 22, 1935.—H. P. A. C. C. N. A.—The forty-sixth annual convention of Heating, Piping and Air Conditioning Contractors National Association, in Cincinnati, Ohio, with headquarters at Hotel Gibson.

BAR SERVICE

Ideas for Those Who Sell and Install Mechanical Equipment for Restaurants and Taverns

Piping for Boilers Used With Kitchen Equipment

By Arthur Branch

WHILE kitchen cooking may be carried on with lower steam pressures it is customary to supply from 40 to 50 lb. steam for such purposes due to the slowing down in the processes which occur when lower pressures are used. If a pressure of more than 15 lb. is decided upon it might just as well be made 50 lb., as anything between 15 and 50 lb. comes under the heading of high pressure and will require exactly the same treatment, equipment, piping, traps, etc., so that the added advantage of the 50 lb. pressure might just as well be obtained. Unless high pressure boilers already are in the building and generating high pressure steam for other purposes, the installation of a small high pressure boiler for kitchen service usually is required and a separate system of kitchen steam piping is run from this boiler to all of the steam operated equipment in the kitchen and return.

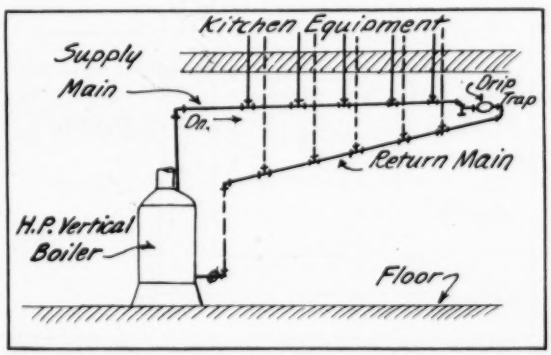

Fig. 1—A typical scheme of piping suited to a case where the boiler is located on the level below the kitchen

The boiler if possible should be installed at a floor level below that on which the kitchen equipment is set in order to secure drainage back to the boiler without the use of mechanical means of lifting the water into the boiler. If the boiler can be installed below the level on which the kitchen equipment is located, the piping may best be run under the kitchen floor and the returns placed in the same position paralleling the supply lines. In this case all that is necessary is to have the returns well above the water line of the boiler and to size the pipes liberally so that the drop in pressure will not be sufficient to prevent the return of the condensation water to the boiler.

If it is necessary to install the boiler on the same level with the kitchen equipment, then the returns must run by gravity to some sort of a receiver return pump which can raise them up and into the boiler against the boiler pressure. While the steam lines may be run on the kitchen ceiling there is little advantage gained ordinarily by such a pro-

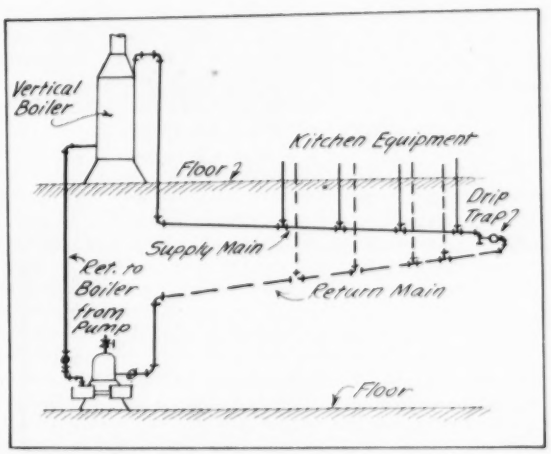

Fig. 2—This shows a modification of the piping when the boiler is set too high for the returns to come back by gravity

cedure as the returns will still have to be carried below the floor—or at least below the equipment—and there will still exist the same difficulty of returning the water to the boiler. Fig. 1 illustrates a typical scheme of piping suited to a case where the boiler is located on the level below the kitchen and Fig. 2 shows the modifications which will have to be made when the boiler is set too high for the returns to come back by gravity or on the same level with the kitchen.

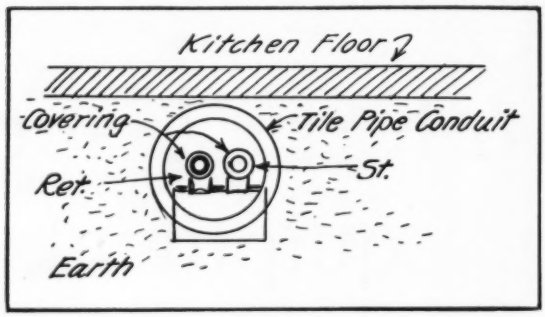

Fig. 3—Cross section view of typical construction for running pipe in a conduit under a kitchen floor

Where lines are run under the kitchen floor objections exist to any kind of a pipe trench with a removable cover owing to the difficulty occurring with the water getting down into the trench, rotting off the pipe covering and generating vapor. Grease also will penetrate such a trench and in a short time it becomes a nuisance. If the kitchen has a cellar or excavated space under the kitchen floor then the pipes may be run in this space and considerable expense avoided. Where the kitchen floor is laid on the ground, a tile pipe conduit or—better—a concrete trench should be used in which to run the pipes. Typical examples of this type of construction are shown in Figs. 3 and 4.

In any event the sleeves through the kitchen floor should be made of corrosion resisting pipe extending some 3 in. above the finished floor and possibly with a 2 in. or 1½ in. cement curb around them to aid in mopping the floor. This is shown in Fig. 5. The covering may or may not extend through these sleeves but usually it is thought unnecessary and the covering terminates below the floor.

EQUIPMENT SHOULD BE TRAPPED

Every piece of kitchen equipment which has a return connection should be trapped with an individual float trap although thermostatic traps sometimes are preferred and in certain instances work satisfactorily. The chief difference between the float trap and the thermostatic trap, in action, is that the float trap will pass water at any temperature and as soon as it enters the trap in sufficient amounts to lift the float while a thermostatic trap requires the water to cool somewhat in temperature before the thermostatic element will operate. Traps also should be placed on the supply line, at the end of the main, at all points where condensation is likely to collect and where any rises in the direction of flow are necessary to be installed. All traps should discharge into the return line which runs either to the boiler or receiver-return pump as the case may be.

The steam piping throughout should be perfectly satisfactory under normal conditions if made of ordinary pipe but the drips and return lines should be made of a corrosion resisting pipe as one of the most frequent failures in piping is on high pressure drips and high pressure returns where it seems that the hot water at high temperature is particularly corrosive. Where lines are run in tile pipe under the floor in such a position as to be practically inaccessible without great expense and inconvenience, it may be considered advisable to use corrosion resisting pipe on both the supply and return for these short runs.

Both steam and return lines should be covered for two reasons; first, the heat loss is greater than on the same amount of pipe in a steam heating system due to the higher pressures and temperatures and, second, because the steam is used all of the year instead of just during the cold months. This makes the heat loss from kitchen piping over twice as much as from a similar amount of pipe surface on the heating system.

APPROXIMATE SIZE OF STEAM LINES

There is not much refinement which can be entered into in sizing steam lines because there is no assurance that at certain times there may not be every piece of apparatus in the kitchen in service requiring a maximum supply at all. Therefore, the surest and simplest method of sizing kitchen steam lines will be by adding the pipe connection areas of all of the apparatus and sizing on a pipe-area basis. That is to say that a pipe, for example, supplying two ½ in. pipes must have an area equal at least to the combined areas of the two ½ in. pipes and a pipe supplying a ½ in. pipe, a ¾ in. pipe and a 1 in. pipe must have at least an area equal to the sum of the areas of the three pipes supplied.

On the returns, the return pipe, if running to the receiver, should have about ⅔ of the combined areas of all of the traps discharging into the return but if running back to the boiler direct should be about one pipe size less than the supply pipe size for the same load.

The boiler size should be based on the probable maximum steam demand and this may be approximated either by securing information from the manufacturer of the kitchen equipment or by approximating the amount from the information

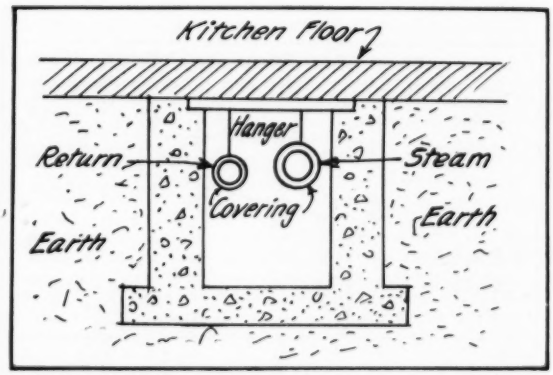

Fig. 4—Another example of how piping may be run under the kitchen floor. In this case a concrete trench is used

given in Table I. After the probable amount of steam has been determined, the boiler horsepower may be approximated by dividing the hourly amount of steam by 30 since there are about 30 lb. of steam to a boiler horsepower when operating at high pressure. The heating surface of the boiler should be about 12 sq. ft. per boiler horsepower in a small vertical boiler or 10 sq. ft. per horsepower in one of the more efficient types of boilers. Less frequent firing periods and less danger of fall in steam pressure is likely where the boiler is amply sized than where a boiler is installed that will just do the work in a pinch. Also allow for the fact that

there is some loss on the distribution piping and don't try to see how small a boiler you can get by with.

TABLE I

Approximate Steam Demand for Kitchen Equipment

Stock Kettles, 40 gal. cap	1 lb. per gal. per hr.
Plate Warmers, per foot of length	2 lb. per gal. per hr.
Vegetable Boiler, per section	15 lb. per gal. per hr.
Steamer—3 Compartment	70 lb. per gal. per hr.
Burnisher, Silver	50 lb. per gal. per hr.
Pot Sink Jet	12 lb. per gal. per hr.
Bain Marie, per foot	13 lb. per gal. per hr.
Coffee Urns, etc., each	15 lb. per gal. per hr.
Egg Boiler	10 lb. per gal. per hr.
Steam Table, per foot	4 lb. per gal. per hr.

Often it is wise to arrange a separate supply of hot water for kitchen use with a good size storage tank as this will help to even up the load on the boiler by storing hot water when

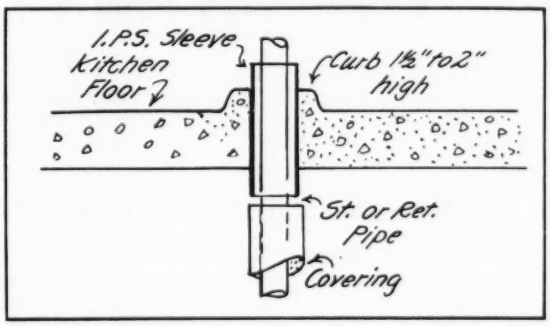

Fig. 5—Here is a cross section drawing which indicates features to be worked into a pipe sleeve designed to permit a pipe to be run through the kitchen floor

the kitchen load is small and can be cut off of the boiler temporarily if the steam supply ever proves inadequate to the demand for a short period allowing the kitchen to run on stored water until the peak demand is over.

Bar Metal Polish

A bar polish for use on copper workboard surfaces has been announced. A cloth is dampened with this liquid polish which is applied directly to the copper surface. Copper is rubbed until thoroughly cleaned and polish is then wiped off with clean cloth. Maker says polish will leave a protective coating which will keep the copper surface clean for an appreciable time. The polish is made by Beerite Products, 3777 Bellevue Ave., Detroit, Mich.

Water Power Glass Washer

The unit shown in the accompanying illustration is designed to be operated in open view to the customers. Provision is made for scalding thoroughly the glasses in hot water and cooling them with the cold water connection. The capacity of the washer is determined by the number of baskets used. As glasses are taken from counter, bar or table they are set into the basket (hold-

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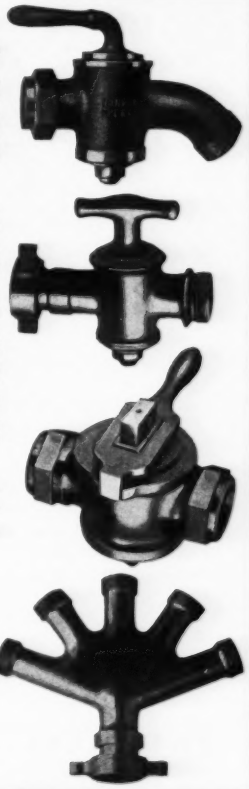

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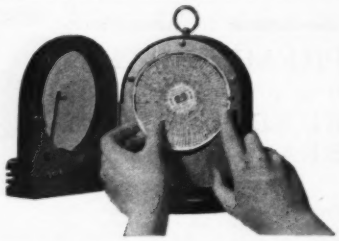

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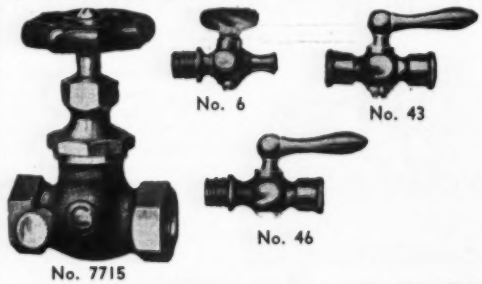

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ing an average of twenty-five glasses) and when basket is filled it is put into the machine. Washing requires about one minute. Basket may then be set out, or permitted to remain in the machine until the glasses are needed. The washer is 27 in. high and 19¼ in. in diameter.

Standard equipment includes hose connection with adapter, and one glass basket. Made by Jackson Dishwasher Div., The Proof Machine & Brass Foundry Co., 936 E. 72nd St., Cleveland, O.

New Trade Literature

New Catalog of Lawn Sprinklers

Frank Rose Mfg. Co. of Hastings, Neb., has just issued its catalog No. 35, illustrating and describing its line of lawn sprinklers, sprinkler heads, pipe-to-hose nipples, spray end units, "square shooters," irrigating nozzles, etc. The catalog consists of 8 pages, 8½ by 11 ins., and is copiously illustrated in colors.

A Fitters' Guide for Figuring Radiation

National Radiator Corporation of Johnstown, Pa., has just issued a "Fitters' Guide, Containing an Easy Method of Figuring Radiation for Steam, Vapor and Hot Water Heating Systems." This "guide" has been revised up to date, to conform with heat transmission coefficients shown in the 1934 edition of the Guide of the American Society of Heating and Ventilating Engineers.

Booklet on Washfountains, Showers and Drinking Fountains

Bradley Washfountain Company of 2203 West Michigan Street, Milwaukee, Wis., has just issued a 12-page booklet, 3¾x8½ in., entitled the "Bradley Blue Book," describing and illustrating this company's group-washing fixtures for industrial plants of every kind and every size, for schools, institutions, government establishments, airports, railroads, department stores, and offices. Group showers and drinking fountains, made by this company, are also described and illustrated in detail in this booklet.

L. O. Koven & Bro., Inc., Issue Plumber's Handbook

L. O. Koven & Brother, Inc., Jersey City, N. J., have just issued the 1935 edition of their Plumber's Handbook, containing descriptions and illustrations of their products such as barber boilers, beer pump tanks, domestic hot water storage heater, range boilers, septic tanks, expansion tanks, gasoline tanks, fuel oil tanks, sinks, etc. Several valuable tables of ratings and capacities are included in this handbook.

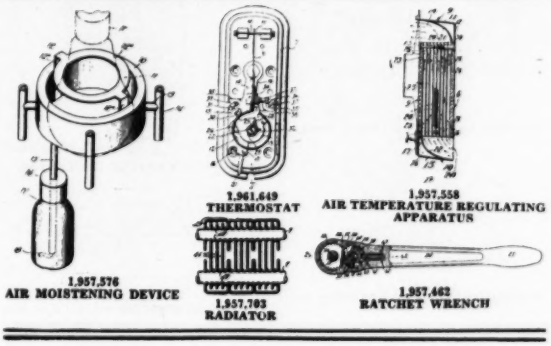
NEW IDEAS FROM PATENT OFFICE

Heating Department

1,957,576. Air Moistening Device. Ferdinand I. Brasic, Chicago, Ill.

1,961,649. Thermostat. Duncan J. Stewart, Rockford, Ill., assignor to Howard D. Colman, Rockford, Ill.

1,957,558. Air Temperature Regulating Apparatus. John A. H. Siers, Jersey City, N. J.



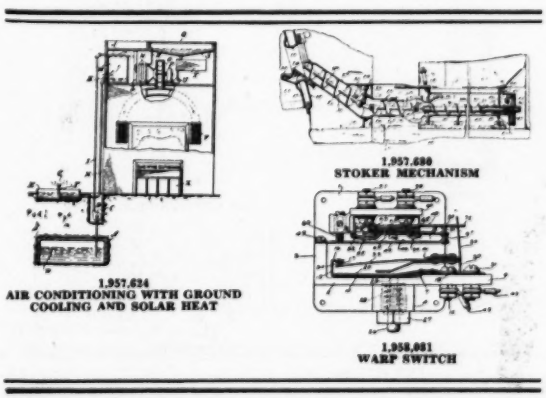
1,957,703. Radiator. Archibald H. Davis, Jr., New Castle, and Paxson Winsborough, Pittsburgh, Pa., assignors to Shaw-Perkins Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania.

1,957,462. Ratchet Wrench. Willard C. Kress, Kenmore, N. Y., assignor to J. H. Williams & Co., Buffalo, N. Y., a corporation of New York.

1,957,624. Air Conditioning with Ground Cooling and Solar Heat. Douglas K. Warner, Bristol, Conn.

1,957,680. Stoker Mechanism. Charles J. Surdykowski, Tuckahoe, N. Y., now by Judicial change of name Charles J. Surdy, assignor to Standard Stoker Company, Inc., a corporation of Delaware.

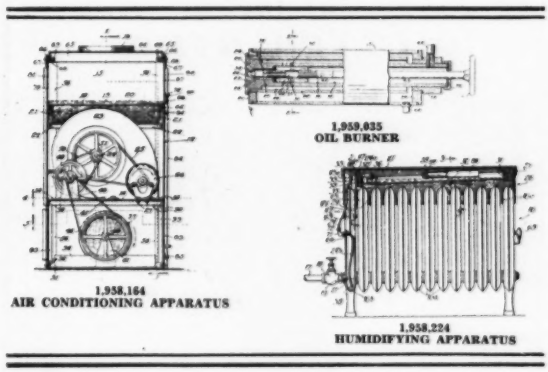
1,958,081. Warp Switch. Frederick S. Denison, Minneapolis, Minn., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a corporation of Delaware.



1,958,164. Air Conditioning Apparatus. Bryce M. Hess, Chicago, Ill.

1,959,035. Oil Burner. Robert Granville Noble, Chicago, Ill.

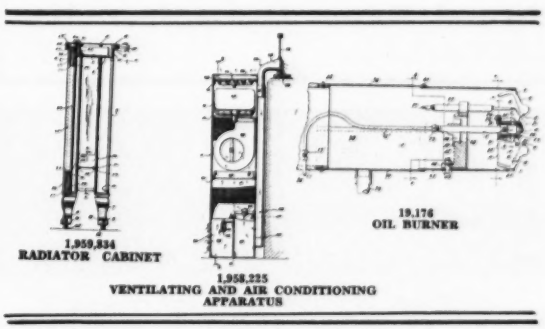
1,958,224. Humidifying Apparatus. Albert C. Anderson, Chicago, Ill.



1,959,834. Radiator Cabinet. Michael J. McHale, Scranton, Pa.

1,958,225. Ventilating and Air Conditioning Apparatus. Joseph Askin, Buffalo, N. Y., assignor to Fedders Manufacturing Company, Inc., Buffalo, N. Y.

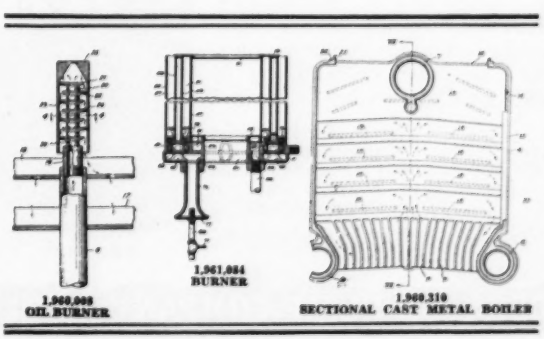
19,176. Oil Burner. Leolyn F. Spear, Westfield, Mass., assignor to Gilbert & Barker Manufacturing Company, West Springfield, Mass., a corporation of Massachusetts.



1,960,008. Oil Burner. Sidney J. Heiman, St. Louis, Mo., assignor to International Oil Heating Company, St. Louis, Mo., a corporation of Missouri.

1,961,084. Burner. Ralston M. Sherman, Glastonbury, Conn., assignor to The Silent Glow Oil Burner Corporation, Hartford, Conn., a corporation of Connecticut.

1,960,310. Sectional Cast Metal Boiler. Louis N. Hunter, Johnstown, Pa., assignor to National Radiator Corporation, Johnstown, Pa., a corporation of Delaware.



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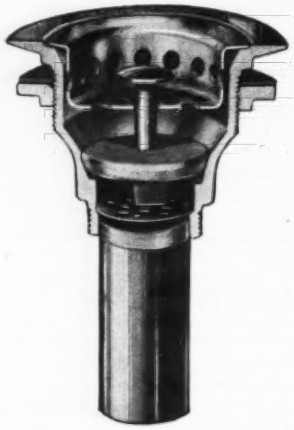

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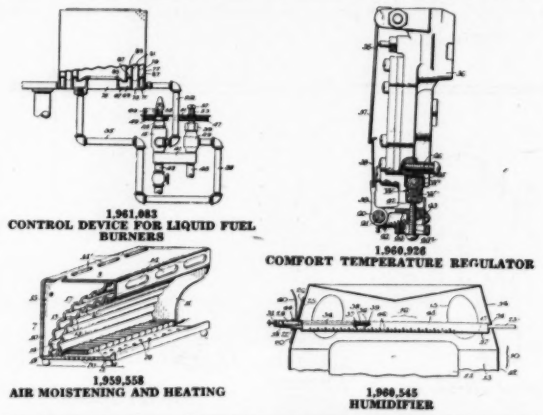
1,961,083. Control Device for Liquid Fuel Burners. Rallston M. Sherman, Glastonbury, and Frederick F. Neumann, West Hartford, Conn., assignors to The Silent Glow Oil Burner Corporation, Hartford, Conn., a corporation of Connecticut.

1,960,926. Comfort Temperature Regulator. Wilfred Shurtleff, Moline, Ill., assignor to The Herman Nelson Corporation, Moline, Ill., a corporation of Illinois.



1,959,558. Air Moistening and Heating. Gerrit Van Daam, Buffalo, N. Y.

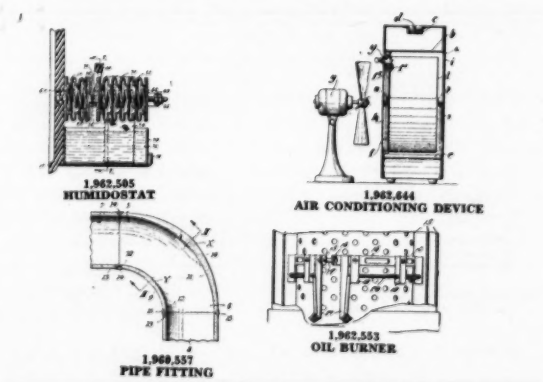
1,960,545. Humidifier. Winfield F. Mortimer, Milwaukee, Wis.

1,962,505. Humidostat. Malcolm E. Henning, Des Moines, Iowa, assignor to Penn Electric Switch Company, Des Moines, Iowa, a corporation of Iowa.

1,962,644. Air Conditioning Device. Cleo Harold Kidwell, Dongan Hills, Staten Island, N. Y., assignor to Kidwell & Co., Inc., West New Brighton, Staten Island, N. Y., a corporation of New York.

1,960,557. Pipe Fitting. Ferdinand L. Snyder, Wilmington, Del., assignor to Tube-Turns, Incorporated, Louisville, Ky., a corporation of Kentucky.

1,962,553. Oil Burner. Samuel Darling, Hartford, Conn., assignor of one-third to Joseph Prichard, Rockville, Conn.

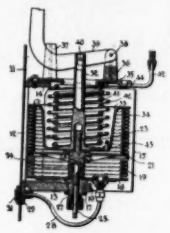


1,961,526. Thermostatic Damper Control. Arthur J. Otto, Milwaukee, Wis., assignor to Johnson Service Company, Milwaukee, Wis., a corporation of Wisconsin.

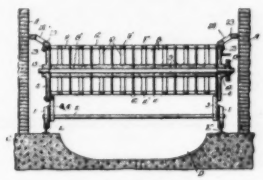
1,961,098. Mechanical Stoker. Charles T. Denker, Chicago, Ill., assignor to Loraine L. Denker, Chicago, Ill.

1,961,802. Burner Controlling Apparatus. Daniel G. Taylor, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a corporation of Delaware.

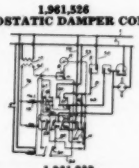
1,963,526. Dirt Trap for Gas Supply Lines. Clarence H. Morrow, Cleveland, Ohio, assignor to The Hotstream Heater Company, Cleveland, Ohio, a corporation of Ohio.



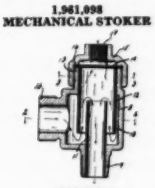
1,961,526
THERMOSTATIC DAMPER CONTROL



1,961,898
MECHANICAL STOKER



1,961,802
BURNER CONTROLLING APPARATUS



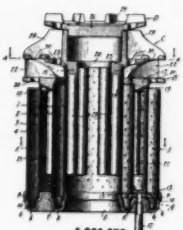
1,963,526
DIRT TRAP FOR GAS SUPPLY LINES

1,961,072. Oil Burner. John William Newbery and John Gilbert Newbery, Rockville Center, N. Y., assignors of one-half to Nathan Hirsch, New York, N. Y.

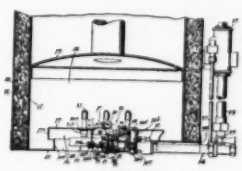
1,962,200. Burner and Safety Control Therefor. Simon J. Lonergan, La Porte, Ind., assignor to Bastian-Morley Company, La Porte, Ind., a corporation of Indiana.

1,962,532. Air Conditioning Apparatus. Archie Hugh Strong, Conshohocken, Pa., assignor to John Wood Manufacturing Company, Inc., Conshohocken, Pa., a corporation of Delaware.

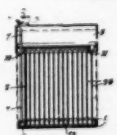
1,962,352. Means and Method of Welding Pipe. Joseph J. Kane, Galveston, Tex.



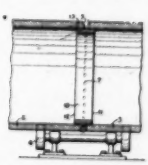
1,961,072
OIL BURNER



1,962,200
BURNER AND SAFETY CONTROL THEREFOR



1,962,532
AIR CONDITIONING APPARATUS



1,962,352
MEANS AND METHOD OF WELDING PIPE

1,961,778. Thermostatic Switch. John W. Pauling, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a corporation of Delaware.

1,963,429. Radiator. Fred M. Young, Racine, Wis.

1,962,180. Humidifying Radiator. Lawrence P. Dwyer, Winnetka, Ill., assignor to C. A. Dunham Company, Marshalltown, Iowa, a corporation of Iowa.

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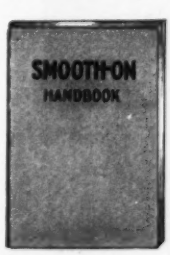

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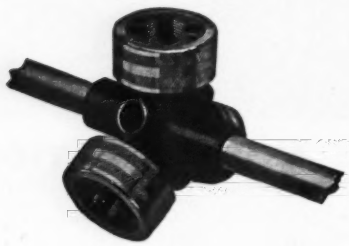

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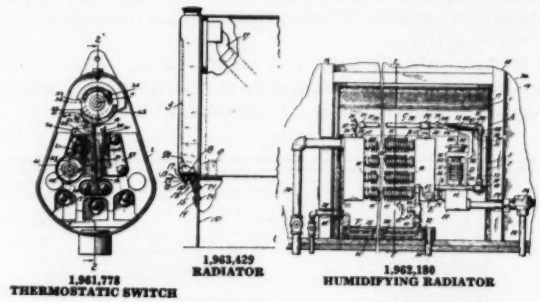
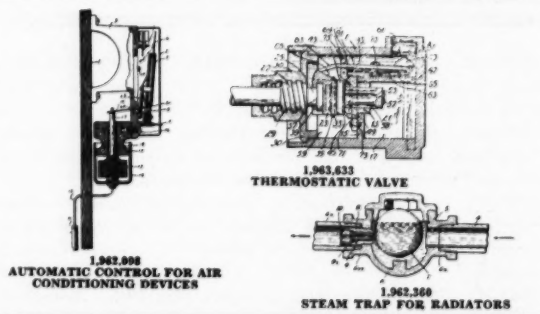


1,961,778 THERMOSTATIC SWITCH — 1,963,429 RADIATOR — 1,962,180 HUMIDIFYING RADIATOR

1,962,098. Automatic Control for Air Conditioning Devices. Glenn F. Zellhoefer, Bloomington, Ill., assignor to Williams Oil-O-Matic Heating Corporation, Bloomington, Ill., a corporation of Illinois.

1,963,633. Thermostatic Valve. John A. Spencer, Newtonville, Mass., assignor to Spencer Thermostat Company, Cambridge, Mass., a corporation of Massachusetts.

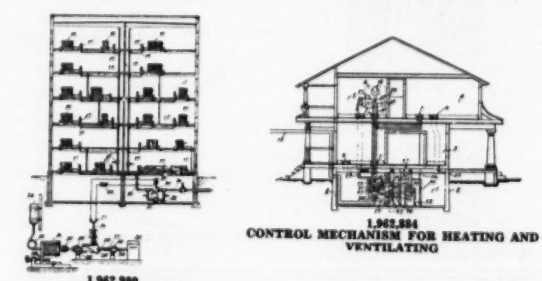
1,962,360. Steam Trap for Radiators. George J. Pflugheber, Yonkers, N. Y.



1,962,098 AUTOMATIC CONTROL FOR AIR CONDITIONING DEVICES — 1,963,633 THERMOSTATIC VALVE — 1,962,360 STEAM TRAP FOR RADIATORS

1,962,999. Heating System. Percy R. Owens, Mount Kisco, N. Y., assignor of twenty-five per cent to Page S. Haselton, Bayside, Long Island, N. Y.

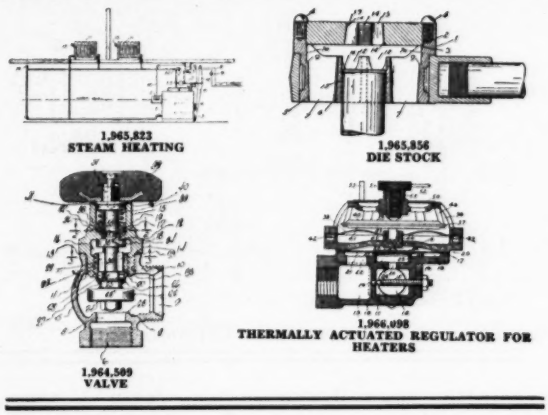
1,962,884. Control Mechanism for Heating and Ventilating. Frederick H. Wagner, Jr., Detroit, Mich., assignor to American Blower Corporation, Detroit, Mich., a corporation of Delaware.



1,962,884 CONTROL MECHANISM FOR HEATING AND VENTILATING — 1,962,999 HEATING SYSTEM

1,965,823. Steam Heating. Ellis Burrell, Chicago, Ill., assignor to Evenaire Regulator Company, Chicago, Ill., a corporation of Illinois.

1,965,856. Die Stock. Thorvald Petersen, Erie, Pa., assignor to Reed Manufacturing Company, Erie, Pa., a corporation of Pennsylvania.

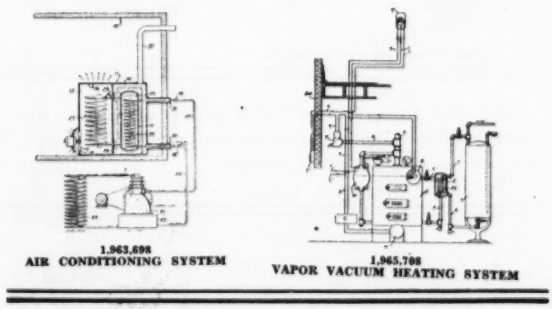


1,964,509. Valve. Valentine Fina, Milwaukee, Wis., assignor to Milwaukee Valve Company, Milwaukee, Wis., a corporation of Wisconsin.

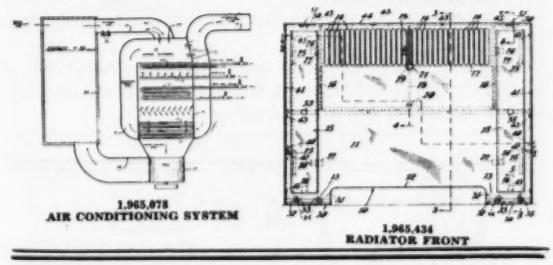
1,966,098. Thermally Actuated Regulator for Heaters. Otto J. Kuenhold, Cleveland, Ohio, assignor to H. M. Sheer Company, Quincy, Ill., a corporation of Illinois.

1,965,708. Vapor Vacuum Heating System. Ira E. McCabe, Chicago, Ill.

1,963,698. Air Conditioning System. Samuel Garre, Jr., Pelham, N. Y.



1,965,078. Air Conditioning System. Harold C. Hewitt, Cleveland, and Ernest R. Hewitt, Salem, Ohio.



1,965,434. Radiator Front. William J. Sherry, Glendale, N. Y., assignor to Tuttle & Bailey Manufacturing Company, New York, N. Y., a corporation of New York.

1,966,431. Ventilator. Thomas J. Devine, New York, N. Y., assignor to Ventilating Products Corporation, a corporation of New York.

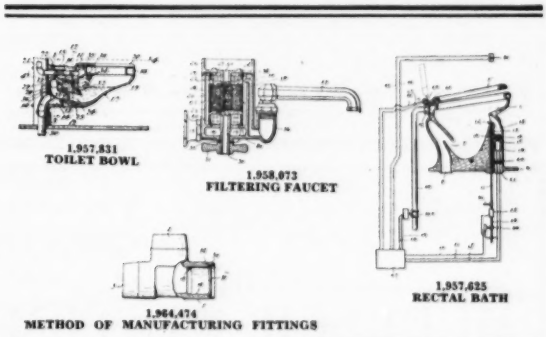
Plumbing Department

1,957,831. Toilet Bowl. Harry Hague, Glendale, and Thomas H. Crowther, Los Angeles, Calif.

1,958,073. Filtering Faucet. Morris Seidel, Brooklyn, N. Y., assignor of one-half to Leon Sanders, New York, N. Y.

1,957,625. Rectal Bath. John Brannan, Fulton, N. Y.

1,964,474. Method of Manufacturing Fittings. David E. Lindquist, Port Huron, Mich., assignor to Muller Brass Co., Port Huron, Mich., a corporation of Michigan.

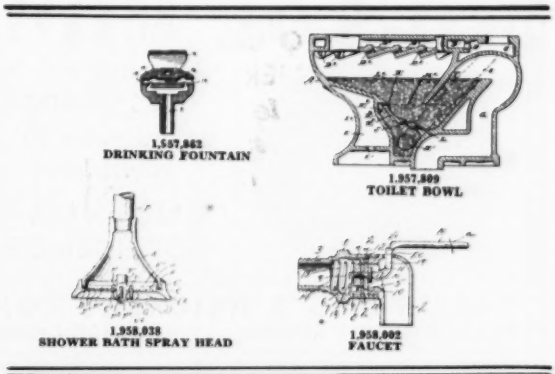


1,957,862. Drinking Fountain. Halsey W. Taylor, Warren, Ohio.

1,957,809. Toilet Bowl. Frederick A. Schossow, Detroit, Mich.

1,958,038. Shower Bath Spray Head. James Fraser, Hillcrest, Edge Moor, Del., assignor to Speakman Company, Wilmington, Del., a corporation of Delaware.

1,958,002. Faucet. Ralph Henningfield, Burlington, Wis.



1,958,498. Valve Grinder. Elmer Ryder, Chicago, Ill.

1,958,712. Drain Trap. William B. Vance, Berkeley, Calif.

1,958,867. Shower Bath Spray Head. Leo Simmons, Washington, D. C.; Berkeley L. Simmons and The National Savings and Trust Company, executors of said Leo Simmons, deceased, assignors to Speakman Company, Wilmington, Del., a corporation of Delaware.

1,958,992. Lavatory Waste Conduit System. James Fraser, Edge Moor, Del., assignor to Speakman Company, Wilmington, Del., a corporation of Delaware.

19,173. Hot Water Heater. Joseph F. Mustee, University Heights, Ohio.

1,958,736. Hot Water System. James T. Barrow, New York, N. Y.

1,959,265. Thermostatic Valve Device. Joseph V. Durnin, Allentown, Pa.

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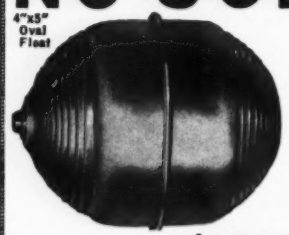

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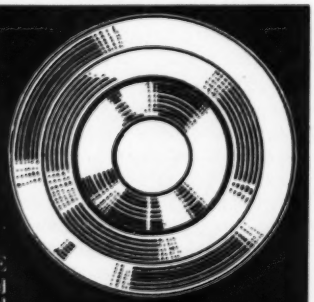

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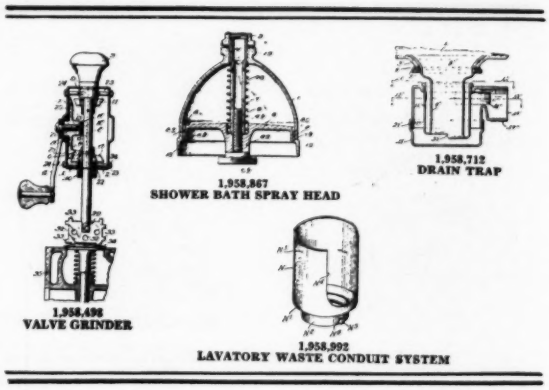
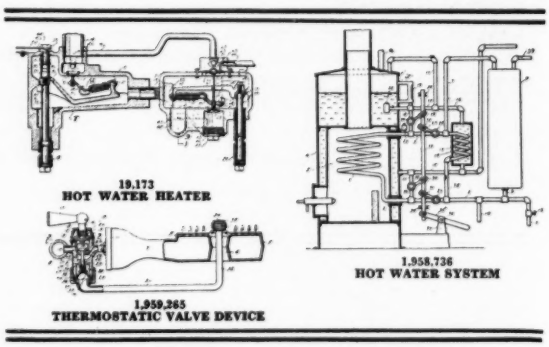
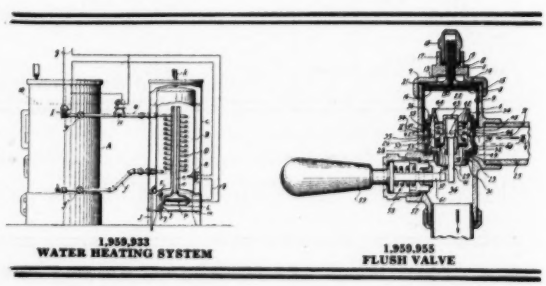


1,959,933. Water Heating System. Julian S. Simsohn, Melrose Park, Pa., assignor to Pennsylvania Range Boiler Company, Philadelphia, Pa., a corporation of Pennsylvania.

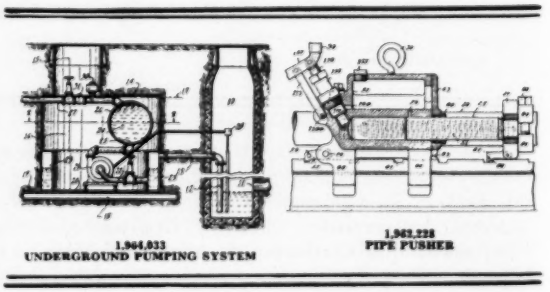
1,959,955. Flush Valve. Edward G. Hedges, Newark, N. J.

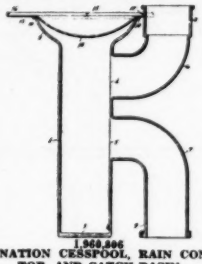


1,964,033. Underground Pumping System. Robert V. Cook, Chicago, Ill., assignor to Fairbanks, Morse & Company, Chicago, Ill., a corporation of Illinois.

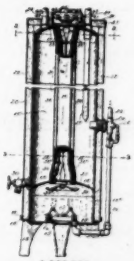


1,962,228. Pipe Pusher. John Herbert Abramson and Edwin C. Swanson, Rockford, Ill., assignors to Greenlee Bros. & Co., Rockford, Ill., a corporation of Illinois.





1,960,806
COMBINATION CESSPOOL, RAIN CONDUCTOR, AND CATCH BASIN



1,961,231
HOT WATER HEATING APPARATUS

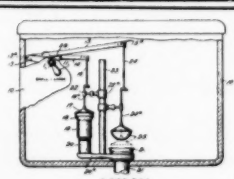
1,960,806. Combination Cesspool, Rain Conductor and Catch Basin. Daniel Cohen, Philadelphia, Pa.

1,961,231. Hot Water Heating Apparatus. George M. Maier, Pelham, N. Y., assignor to American Radiator Company, New York, N. Y., a corporation of New Jersey.

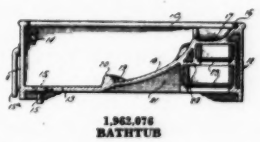
1,960,864. Flush Tank Valve Operating Device. Charles Watkins Brown, San Diego, Calif.

1,962,076. Bathtub. John Jadkowski. Philadelphia.

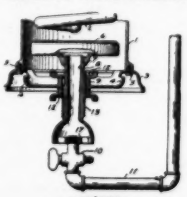
1,966,399. Gas Burner Support. Edmund J. Te Pas, Lakewood, and Earl J. Hansen, Cleveland, Ohio, assignors to The Cleveland Heater Company, Cleveland, Ohio, a corporation of Ohio.



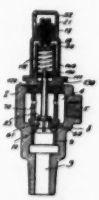
1,960,864
FLUSH TANK VALVE OPERATING DEVICE



1,962,076
BATHTUB



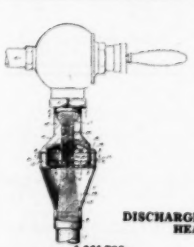
1,966,399
GAS BURNER SUPPORT



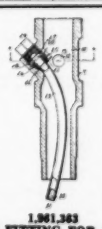
1,960,271
TEMPERATURE AND PRESSURE RELIEF VALVE

1,960,271. Temperature and Pressure Relief Valve. Luther D. Lovekin, Wynnewood, Pa., assignor to Kitson Company, Philadelphia, Pa., a corporation of West Virginia.

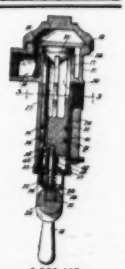
1,961,795. Flushing Device. Thomas E. Sheridan, Los Angeles, Calif.



1,961,795
FLUSHING DEVICE



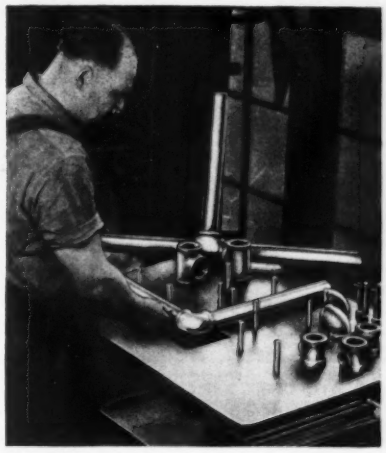
1,961,383
DISCHARGE FITTING FOR HOT WATER HEATERS AND THE LIKE



1,961,489
FLUSH VALVE

We're never satisfied until every detail is checked

DEVLIN fittings FRETZ nipples



TRUE alignment in the threading of fittings is vitally important. And although we thread our fittings on the most modern threading machines — we pick threaded fittings at random from each machine and test them for alignment.

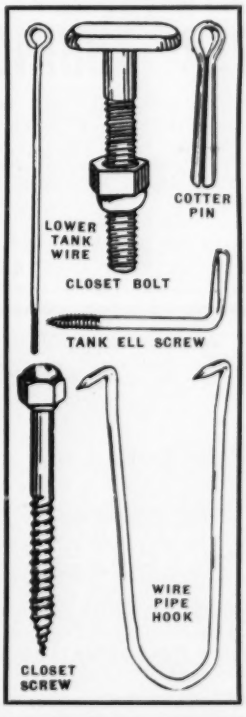
The photo shows a Devlin "L" being checked for perfect alignment on a precision alignment device.

We are never satisfied until the last detail is checked. That is why Devlin Fittings check 100% with quality standards.

THOMAS DEVLIN MANUFACTURING CO.
BURLINGTON, N. J.
Manufacturers of a complete line of Devlin Fittings and Fretz Nipples

HINDLEY'S :: PLUMBERS' :: SPECIALTIES

A small INVESTMENT insures a larger PROFIT MARGIN!



A COMPLETE stock of HINDLEY'S Plumbers' Specialties requires but a small investment. And yet the plumber who keeps them handy can actually step up his profit margin simply because of the time and effort HINDLEY'S save him and his help on the job. The complete line is shown in Domestic Engineering Plumbing and Heating Catalog.

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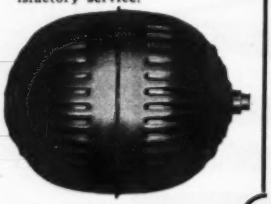
Leader tank balls seat perfectly every time.
Reichert Floats are made of heavy gauge sheet copper, two sections seamed in securely. The reinforced spud makes them the strongest on the market. They stand up even when service is particularly severe, such as in factories, schools and public buildings. Write for details on this profitable line.
Made of best materials and thoroughly inspected and tested, they assure long, satisfactory service.

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FOR USE ON
COPPER TUBING

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Detroit, Michigan
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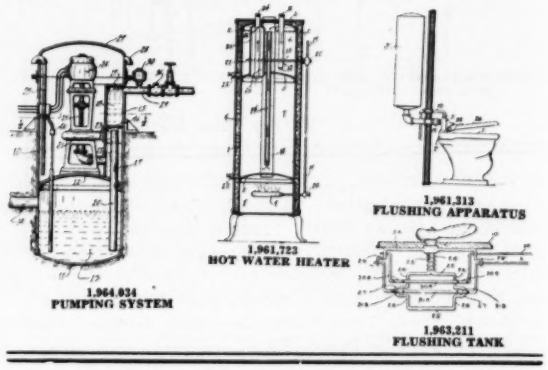
Buttwelded
Lapwelded
Seamless
JONES & LAUGHLIN STEEL CORPORATION
AMERICAN IRON AND STEEL WORKS
PITTSBURGH

1,961,363. Discharge Fitting for Hot Water Heaters and the Like. Herbert S. Humphrey, Kalamazoo, Mich., assignor to Ruud Manufacturing Company, Kalamazoo, Mich.

1,961,469. Flush Valve. Delos E. West and Nelson S. Palmer, Ithaca, N. Y.



1,964,034. Pumping System. Robert V. Cook, Chicago, Ill., assignor to Fairbanks, Morse & Company, Chicago, Ill., a corporation of Illinois.

1,961,723. Hot Water Heater. Robert P. Wilson, Fort Worth, Tex.

1,961,313. Flushing Apparatus. Joseph A. Vogel, Wilmington, Del., assignor to Joseph A. Vogel Company, Wilmington, Del., a corporation of Delaware.

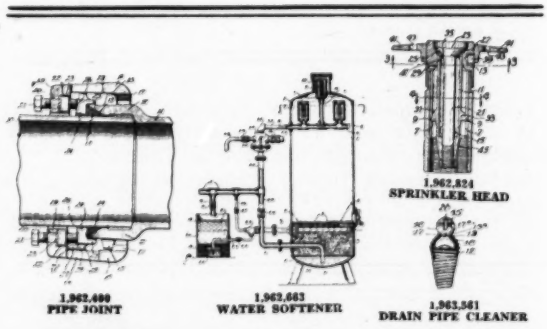
1,963,211. Flushing Tank. Harry W. Patterson, Walkerville, Ontario, Canada.

1,962,400. Pipe Joint. Arthur T. McWane, Birmingham, Ala., assignor to McWane Cast Iron Pipe Company, Birmingham, Ala., a corporation of Alabama.

1,962,663. Water Softener. Chester T. McGill, Elgin, Ill.

1,962,824. Sprinkler Head. David E. Lindquist and Philip Irving, Port Huron, Mich., assignors to Mueller Brass Co., Port Huron, Mich., a corporation of Michigan.

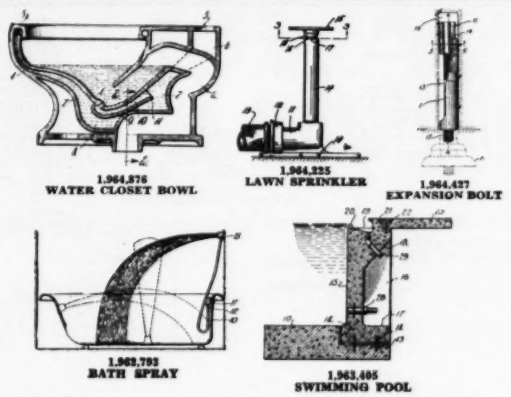
1,963,561. Drain Pipe Cleaner. George J. Sanger, Park Ridge, Ill.



1,964,876. Water Closet Bowl. Gordon P. Gavin, Kohler, Wis.

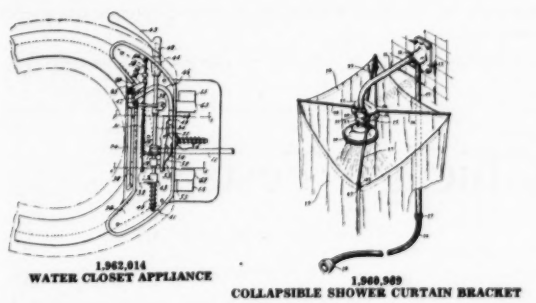
1,964,225. Lawn Sprinkler. Roscoe R. Sumner, Denver, Colo.

1,964,427. Expansion Bolt. Homer P. Chandler, Mansfield, Ohio, assignor to The Ohio Brass Company, Mansfield, Ohio, a corporation of New Jersey.



1,962,793. Bath Spray. Carl Vogel, Chicago, Ill.

1,963,405. Swimming Pool. William H. Eichelman, Des Plaines, and Eric E. Hall, Chicago, Ill., assignors, by direct and mesne assignments, of three-fourths to said Eichelman and one-fourth to James E. Whelan, Chicago, Ill.

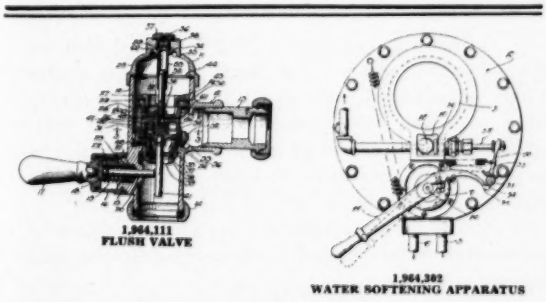


1,962,014. Water Closet Appliance. Ferruccio Guidetti, Elmhurst, N. Y.

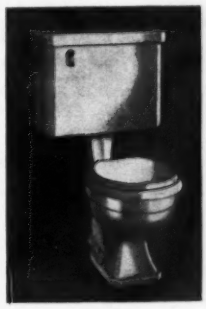
1,960,969. Collapsible Shower Curtain Bracket. James F. Duncan, Waterbury, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut.

1,964,111. Flush Valve. August C. Dobrick, Chicago, Ill., assignor to The Imperial Brass Manufacturing Company, Chicago, Ill., a corporation of Illinois.

1,964,302. Water Softening Apparatus. Melvin Shetler, Flint, Mich.



1,965,322. Valve. Harry S. Steen, Chicago, Ill., assignor to Chicago Faucet Company, Chicago, Ill., a corporation of Illinois.



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200, 250 and 300 lb. Test

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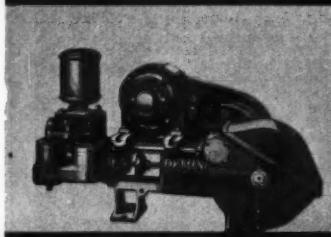

HELICAL cut gears, Timken roller bearings, stainless steel piston rod, capacities 550 to 4800 gal. per hour.

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Triple Wear Wrenches

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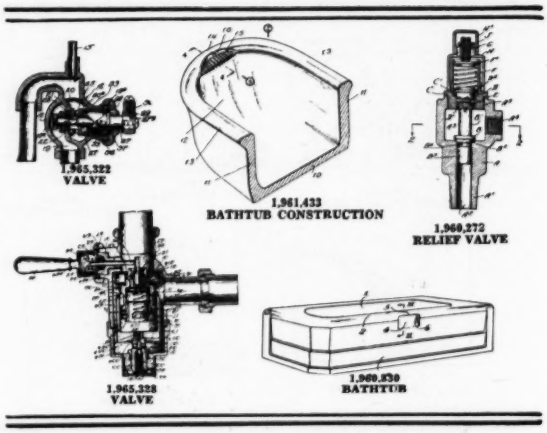

1,961,433. Bathtub Construction. Edmund B. Schlegel, Brooklyn, N. Y.

1,960,272. Relief Valve. Luther D. Lovekin, Wynnewood, Pa., assignor to Kitson Company, Philadelphia, Pa., a corporation of West Virginia.

1,965,328. Valve. Leo Lewis Wright, Indianapolis, Ind., assignor to Chicago Faucet Company, a corporation of Illinois.

1,960,830. Bathtub. Harry S. Saxman, Blairsville, Pa.

Chicago Tests—

(Concluded from Page 41)

b. Under any condition of test as set forth in part 3, the water shall not rise more than 3 in. in the tail-piece.

3. Tests which siphon-preventors must pass:
   a. Tests with various degrees of sustained vacuum. Use 22 in., 12 in. and 2 in. of mercury for a duration of about 3 minutes.
   b. Test with sudden application of vacuum when valve is flushing. Use vacuum of 22 in. and 2 in. of mercury.
   c. Apply vacuum of 22 in., 12 in. and 2 in. of mercury when main valve is held the equivalent of all the way off its seat, as represented by a wire about 0.2 in. in diameter, which is placed under the seat.

A majority report of the Board showed that two of the vacuum breakers for back siphonage protection, which were tested, met all of the requirements, others were approved for special installations and that still others probably would pass all of the tests if changes were made in the water and air passages and if other minor features were altered.

A minority report withheld approval on some of the above and recommended modifications in the majority report.

A resolution of the special committee on vacuum breakers of the Plumbing Contractors' Association of Chicago stated that they cannot consistently recommend to the health department of the City of Chicago any vacuum breaker with movable parts.

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HELP WANTED: SALESMAN—WITH following among older type of wholesale jobbers—Metropolitan territory—to sell in interest of long established manufacturer's representative. State all details and salary desired. Address Key 122-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Ill.

SALESMEN, ACQUAINTED PLUMBing jobbers to sell complete chemical line. Also men to cover maintenance chemical line. Commission, drawing when qualified. Protected territory. RENU PRODUCTS, Whitestone, N. Y.

TERRITORY OPEN FOR SALESMAN calling in the heating and plumbing industry. Address Key 114-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Ill.

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ESTIMATOR - SUPERINTENDENT — graduate sanitary-heating and air conditioning engineer, fifteen years' practical experience desires position, where ability and progressiveness is appreciated. Address Key 120-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Ill.

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MANUFACTURERS OF BOILERS AND radiators: We have a fine proposition on our product to those who would like to add a kindred commodity to their line. No additional costs or overhead are incurred. Address Key 117-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Ill.

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NEW YORK METROPOLITAN: ACtive sales representative can handle another line. Staple line preferred. Address Key 121-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Ill.

PACIFIC COAST MANUFACTURERS' agent long established, clientele all of best jobbers could take on a good line. Address Key 113-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Ill.

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REPRESENTATIVES WANTED FOR established steel boiler manufacturer. Making complete line of steel boilers. Preference given to man having previous experience selling steel boilers, or who are handling a steam specialty line. Give complete particulars when answering. Address Key 109-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Ill.

SALES REPRESENTATIVES: COVERing legitimate plumbing trade in every state. Protected territory on sale of Patented Valve. Manufacturers' representative will be considered. Give experience and reference. Address Key 992, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

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WANTED: USED NIPPLE MACHINE with A. C. motor, for quantity production. State make, capacity and price F. O. B. Detroit. Address Key 116-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Ill.

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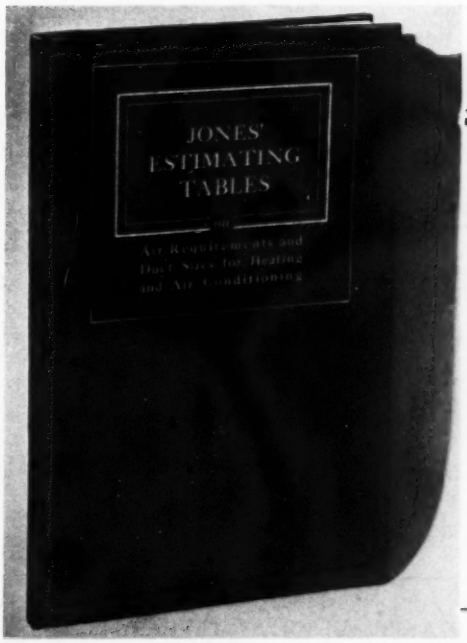

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How much air will one Btu raise one degree Fahrenheit?
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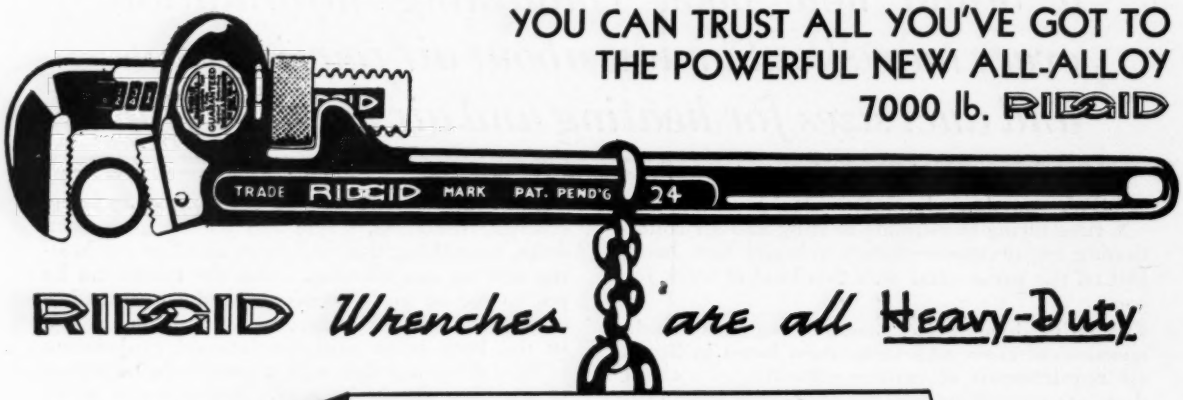

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